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Base Metals in Saskatchewan

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Front cover: Diamond drill core from the McIlvenna Bay Cu-Zn deposit, Hanson Lake, Saskatchewan

(Photograph courtesy of **Cameco** - a Canadian Mining and Energy Corporation)

FOREWORD

This report has been generated in response to the current resurgence of base metal exploration interest in Saskatchewan. It brings together information from a variety of sources including: the assessment file records, the Saskatchewan Mineral Deposits Index, provincial and federal government reports, company annual reports, newspaper and journal articles, and unpublished data from the author's own investigations in northern Saskatchewan. In addition to descriptions of individual base metal deposits/occurrences, there are reviews of the geological settings of the major base metal districts, discussions of deposit controls and genesis, and suggestions for further exploration. As such it is anticipated that the report will serve as a valuable reference for the base metal explorationist.

The report has been prepared by Coombe Geoconsultants Ltd. of Victoria (formerly of Regina), under contracts funded by Saskatchewan Energy and Mines through its Mineral Industry Diversification Program (MIDP) for 1989 and 1990. Although most aspects of production have been handled by the Consultant, the appendix containing the table of Class 3 Occurrences and the five base metal distribution maps accompanying this report were prepared by staff of the Mineral Development Branch of Saskatchewan Energy and Mines. The report is unedited by Saskatchewan Energy and Mines, thus the responsibility for the veracity of the factual data and for the opinions expressed therein, rests entirely with the consultant.

T.I.I. Sibbald
Mineral Development Branch

March 1991

SUMMARY

Since 1909 923 base metal occurrences have been found in the Precambrian Shield of northern Saskatchewan. These occurrences are predominantly of copper (561) and zinc (124), but several lead (48) and nickel (42) occurrences are also known. Of the total, 148 are considered significant because of their contained metal values and levels of exploration and/or development. They comprise 90 copper, 38 zinc, 5 lead and 15 nickel occurrences.

The Callinan Cu-Zn mine at Flin Flon is currently the only producing base metal mine in Saskatchewan . However, there have been seven former base metal mines that produced Cu, Cu-Zn, Zn-Pb-Cu and Ni. Precious metals have been important by-products from all of these mines. As well, significant quantities of Cd, Se and Te have been won from Cu-Zn mines in the Flin Flon area. Since the commencement of mining operations in 1930 approximately 1.2 billion kg Zn, 1.0 billion kg Cu, 6 million kg Pb and 650,000 kg Ni have been produced in Saskatchewan.

The known base metal occurrences are distributed throughout the Precambrian Shield, but the vast majority (73%) of the significant ones are found in the Reindeer Zone. Copper occurrences are concentrated in three main areas: the Zemlack Block of the Western Craton and the La Ronge and Flin Flon Domains of the Reindeer Zone. Lead occurrences are more predominant in the Western Craton and Cree Lake Zone than in the Reindeer Zone. Nickel occurrences are most conspicuous in the Tantato Domain of the Western Craton and the La Ronge Domain of the Reindeer Zone. Significant zinc occurrences are not known in the Western Craton; they are mainly concentrated in the Reindeer Zone, particularly in the La Ronge Domain, the Hanson Lake Block and the Flin Flon Domain.

Four major base metal deposit types can be recognized in northern Saskatchewan. In order of importance these are: a) volcanogenic massive sulphides (both Cu±Zn and Zn-Pb±Cu types), b) ultramafic-mafic intrusion-hosted Ni-Cu, c) sandstone-type Zn-Pb±Cu, and d) porphyry-style Cu±Mo±Au. More equivocal occurrences may represent metamorphogenic deposits as well as 'red bed-type' Cu.

The distribution of base metal occurrences, with respect to both commodity-type and deposit-type, is a clear reflection of the crustal evolution of the Precambrian Shield in northern Saskatchewan. An older craton (the 'Churchill Craton'), containing Archean ultramafic-mafic intrusion-hosted Ni-Cu deposits, was fragmented in Lower Proterozoic times. Sandstone-type Zn-Pb±Cu deposits formed within epicontinental-miogeoclinal sediments of the Lower Proterozoic Wollaston Group that were deposited upon the trailing margin of the craton. Volcanogenic massive sulphides (VMS) were possibly deposited during oceanic rifting and the development of oceanic crust. However, the majority of the VMS deposits were formed during subsequent oceanic closure and development of volcanic arcs, such as the Hanson Lake-Flin Flon and La Ronge arcs, and inter-arc basins, such as the Kisseynew basin. In places, porphyry-style Cu±Mo±Au mineralization accompanied the island arc volcanism. Further ultramafic-mafic intrusion-hosted Ni-Cu deposits formed during final oceanic closure associated with the Hudsonian orogeny. Finally, 'red bed-type' (?) Cu mineralization, conspicuous north of Lake Athabasca, formed near the bases of localized, late- to post-tectonic (Hudsonian) volcano-sedimentary successor basin sequences.

There have been several significant base metal discoveries in Saskatchewan during the last 10 years, despite the emphasis on gold exploration during the 1980s. The vast majority of these discoveries have been made in the Limestone Lake-Hanson Lake-Flin Flon area (and immediately contiguous parts of Manitoba). The more important recent discoveries include the Bigstone Cu-Zn, Callinan Cu-Zn and McIlvenna Bay Zn-Cu-Pb deposits in Saskatchewan (and Trout Lake Cu-Zn and Namew Lake Ni-Cu deposits in Manitoba).

There is considerable potential for further discovery of important base metal mineralization in Saskatchewan. Success will be contingent upon the application of focussed search parameters. For example, the identification and saturation exploration of mineralized "favourable" horizons holds great promise for the discovery of further VMS deposits within the arc-derived volcanics of the Reindeer Zone. Similarly, more attention should be afforded to the geometric vagaries of potential Ni-Cu orebodies within ultramafic-mafic intrusives.

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INTRODUCTION

General

This report presents a review of base metal (i.e. copper, lead, nickel and zinc) mineralization in the Precambrian of northern Saskatchewan. It attempts to condense, synthesize and interpret available data on the 923 known base metal occurrences in the Precambrian. The report does *not* include documented base metal occurrences within the Phanerozoic rocks of the Province, e.g. sporadic lead-zinc mineralization within Devonian carbonates.

Exploration and development of base metals, both past and present, are reviewed and production histories of the major commodities are discussed. For the reader unfamiliar with the geology of Saskatchewan, a brief overview of the geological framework of the province is provided. The distribution of base metals is described and an interpretation of the regional metallogeny is provided. Finally, the mineral potential for the more important mineral deposit types is evaluated.

The 923 known base metal occurrences are described individually. Reviews of history of exploration and development and geology and mineralization for the 148 known significant occurrences are provided.

The report was prepared between July, 1989 and October, 1990.

The Database

The report is based upon non-confidential information, derived principally from the Saskatchewan Mineral Index (SMI). The latter is a computer-assisted database that contains information on all known mineral occurrences in Saskatchewan (Harris, 1983). In the Mineral Index, each occurrence is given an index number and is listed sequentially by commodity for each 1:50,000 NTS map area. Information was also obtained directly from non-confidential Saskatchewan Energy and Mines (SEM) assessment files as well as company reports and other published data.

Methodology

Base metal occurrences in Saskatchewan are described in this report on a commodity basis, both for simplicity and to maintain compatibility with the Saskatchewan Mineral Index. Only the principal non-ferrous metals (excluding precious metals) that occur in the Precambrian of Saskatchewan, namely copper, lead, nickel and zinc, are considered in this report. Other significant base metals, for example cadmium, molybdenum, selenium, tellurium, etc., are only mentioned where they are associated with the principal metals.

Because of the magnitude of the Mineral Index database, the base metal occurrences were initially screened and categorized according to arbitrary and, hopefully, objective parameters established by the consultants. The classification process was established with several aspects in mind. The consultants felt strongly that a review of base metal occurrences would be of most use to the mining industry. As such, the prime objective of the process was to provide the reader with insight into a) the types of primary commodities present in Saskatchewan, and their distribution, and b) distinguish the apparent relative economic worth of the occurrences (based on current information). The latter distinction is clearly very difficult to achieve without regard to important economic variables such as commodity prices, production costs, recoveries, smelter and refinery charges, transportation costs, etc.

Bearing the above in mind, three classes of occurrences were compiled for each principal commodity, i.e. a class containing former producers, current mines and advanced prospects, a second class containing occurrences with reported commodity values greater than an arbitrary cut-off grade (in ft.per cent and specific to each commodity) and a third class containing all the other known occurrences.

For the second class, cut-off grades for each of the commodities were chosen to reflect historic metal price relationships between the major commodities and/or crustal abundances of the respective metals.

The following categories of occurrences were established for each of the principal base metals:

Class 1 occurrences (deposits) are those mineral deposits that were formerly mined, are currently being mined, or contain (at a minimum) reported drill-indicated reserves of the principal commodity (i.e. advanced prospects).

Class 2 occurrences (prospects) are those that contain reported values of the principal commodity (from trenching and/or diamond

drilling) equal, or greater than, an arbitrary cut-off grade (in ft.per cent) for each of the principal commodities as follows:

Commodity	Cut-off	
	ft.per cent	*m.per cent*
Cu	2.0	0.61
Pb	4.0	1.22
Ni	1.0	0.30
Zn	4.0	1.22

Class 3 occurrences are those that (i) contain values of the principal commodity (reported from trenching and/or diamond drilling) less than the cut-off grades outlined above, and /or (ii) have only been sampled in a cursory fashion (e.g. only grab sample values have been reported), and/or (iii) contain only the reported presence of a mineral bearing the principal commodity of interest (e.g. chalcopyrite, in the case of copper).

Through this process, the 923 occurrences were divided into 28 Class 1, 120 Class 2 and 775 Class 3 occurrences.

Deposit Descriptions

Copper, lead, nickel and zinc occurrences are described separately, despite the metallogenic limitations that are invoked by such an approach. The known significant occurrences (i.e. those belonging to Classes 1 and 2) for each commodity are described in some detail. Class 3 occurrences are described in a tabulated format as an appendix to the report (provided by Saskatchewan Energy and Mines).

The descriptions are listed according to NTS map areas, which are given in ascending numeric order, e.g. 63K, 63L, 63M, 63N, 64D, 64E, etc.

For each of the Class 1 and 2 occurrences, the descriptions include the following:

- Name
- Location
- History and Development
- Geology and Mineralization
- References

For each of the Class 3 occurrences, the descriptions include the following:

- Map area (NTS)
- Name
- Latitude
- Longitude
- Commodity index number
- Associated commodities
- Mineralogy
- Host rock
- Deposit type
- Highest reported commodity assay
- Highest reported associated assay
- Saskatchewan Mineral Deposit Index number

Remarks

Several difficulties were experienced with the Saskatchewan Mineral Index. In many cases, the consultants had to research original SEM assessment files to determine the principal commodity, or to confirm assay values, locations, etc. reported in the Mineral Index.

Every reasonable attempt was made to ensure the accuracy of the factual information presented in this report. However, Coombe Geoconsultants Ltd. does not assume any responsibility for inaccuracies arising from information directly extracted from the Mineral Index and not subsequently confirmed by the consultants.

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EXPLORATION AND DEVELOPMENT: PAST AND PRESENT

Pre-1930

The earliest reported geological work in northern Saskatchewan commenced in 1880, when the Geological Survey of Canada conducted a topographic survey along the Saskatchewan River to Reindeer Lake and northwards to Lake Athabasca. During 1882-93, J.B. Tyrrell surveyed many of the major waterways. Of significance, he reported the presence of noritic rocks on the north shore of Pine Channel at the east end of Lake Athabasca. There are few other records of geological work in northern Saskatchewan prior to the creation of the province in 1905.

Undoubtedly, mineralization had been noticed before, but it was not until 1909 that base metal mineralization was reported in northern Saskatchewan. During 1908-10 W. McInnes of the Geological Survey of Canada surveyed the southern part of the Precambrian Shield between Lac La Ronge and the Manitoba border. In 1909 he noted copper mineralization at Moose Point, Lac La Ronge.

At about the same time, H.V. Dardier, backed by the British firm of Vickers, initiated exploration for nickel in the noritic rocks of the eastern part of Lake Athabasca. Apparently, the venture encountered only traces of nickel and copper.

In 1915 prospectors Tom Creighton and his associates, the Mosher and Dion brothers, discovered one of the most important base metal deposits in Canada. The discovery outcrop of complex sulphide at Flin Flon, on the Saskatchewan-Manitoba border, was later to become the Flin Flon mine. The complex mineralogy precluded immediate exploitation of the deposit; it was not until 1925 that treatment of the ore became feasible. That year the New York magnate H.P. Whitney sent a group to Flin Flon to determine the quantity of ore and evaluate a source of power. Island Falls, approximately 95 km north of Flin Flon on the Churchill River, was chosen as the power source. During August, 1926 and March, 1927 a small power plant and pilot mill were constructed to conduct production tests and underground stoping was begun. In late 1927 the Hudson Bay Mining and Smelting Company Limited (owned 50 per cent by the Whitney interests, 35 per cent by Newmont Company and 15 per cent by Mining Corp. of Canada) was formed to purchase, equip and develop the property. The CNR rail line was extended north from The Pas, Manitoba and reached Flin Flon in the fall of 1928. By June, 1930 power from Island Falls was available to the Flin Flon transformers and by July 1 the mill was operational. The first ore was mined from the Saskatchewan side in 1933 and the mine has operated continuously since. In 1938 diluted ore reserves were reported at 27,534,000 tons grading 4.2% zinc, 2.23% copper, 1.44 oz. silver/ton and 0.094 oz. gold/ton.

The same year as the discovery of the Flin Flon massive sulphide deposit, i.e. 1915, the Hall brothers (Richard and Gordon) staked the copper showing on Moose Point, Lac La Ronge. The showing would eventually become the Anglo-Rouyn mine.

In 1920 the Saskatchewan Bureau of Labour and Industries was formed with the purpose, among others, of promoting natural resources. In the ensuing years the Bureau conducted geological reconnaissance trips to northern Saskatchewan, especially the Lac La Ronge and Wapawekka Lake areas.

The arrival of the amphibious aeroplane during the 1920s greatly assisted prospectors in the north. Elsewhere, E.L. Brown discovered copper-zinc mineralization at Paskwachi Bay, Reindeer Lake in 1927 and the Hall brothers staked nickel-copper mineralization at Rottenstone Lake (known for many years previously as the "hill of rottenstone") in 1928. The latter deposit was to be later mined in the 1960s. Also in 1928, Dominion Explorers staked more than 150 claims east of Norite Bay and northwest of Stony Rapids, where nickel-copper mineralization was discovered at Axis Lake.

During the 1920s to 1930s the Geological Survey of Canada carried out some mapping in the northern country. Four main areas were covered, i.e. Wapawekka-Deschambault (J.S. Delury in 1923-24), Pelican Narrows (J. Satterly in 1931), Flin Flon (F.J. Alcock in 1932) and Amisk Lake (J.F. Wright in 1932 and J.F. Wright and C.H. Stockwell in 1933).

1930-1960

In October, 1930 "all crown lands, mines, minerals and royalties" were transferred to the province. From that time on all mining records were handled by the Mines Branch, Department of Natural Resources. In 1931, J.B. Mawdsley conducted reconnaissance studies on behalf of the Department of Natural Resources.

During 1934-40 the Geological Survey of Canada completed an extensive program of aircraft-supported reconnaissance mapping from Lake Athabasca in the north to Flin Flon in the south. For the first time geological maps were available for most of northern Saskatchewan. The maps were produced at a scale of one inch to four miles.

There was little prospecting activity throughout the late-1920s to mid-1930s. During this period several showings were discovered in diverse parts of the province. In the more southerly part of the Precambrian Shield galena was discovered at Hanson Lake and copper-zinc-gold mineralization was found at Nistoassini Lake. Further north, the Borealis Syndicate discovered nickel at Dinty Lake, about 40 km northeast of the then bustling townsite of Goldfields.

Base metal exploration continued at a relatively low level throughout the 1930s to1950s. Most attention was directed initially to gold exploration and, later, to uranium exploration. Sporadic exploration continued for base metals in both the La Ronge and Flin Flon areas.

In the La Ronge area, nickel-copper mineralization at Nemeiben Lake was first staked in 1944 for the Consolidated Mining and Smelting Company of Canada Limited. The showing was drilled several times over the following years by different operators, e.g. 1945, 1954, 1955-56,1967-68 and 1973, but the deposit proved to be subeconomic.

In the Flin Flon area, prospector Joe Brain discovered the Birch Lake copper(-zinc) deposit in 1949 in the area east of Amisk Lake. This deposit would later become a mine.

In 1946 there were only 250 claims under disposition in the entire north. In 1947 the Saskatchewan government introduced prospecting concessions and the following year inaugurated a further program to encourage prospecting in the province. The program included the Prospector's Assistance Plan, the formation of the Saskatchewan Geological Survey and extensive use of aircraft to support the prospecting and mapping projects. The results were almost immediate: claim staking reached an all-time high in 1948-49 when a record number of 1,196 claims were recorded.

The Saskatchewan Geological Survey commenced mapping in the 1948 season. That year Dr. A.R. Byers mapped the Waddy Lake area and his report was the first of an on-going series which continue to the present day. In 1953, the Department of Mineral Resources (now Saskatchewan Energy and Mines) was created from the former Mines Branch, Department of Natural Resources.

The Saskatchewan and, to a lesser degree, the federal governments have continued to provide support for mineral exploration and development in the province. In 1953 Saskatchewan became the first province to sponsor an aeromagnetic survey; during the 1950s to 1960s most of the province was flown as a cost-shared program between the province and the federal government. In 1957, the province became the first government agency to contract a combined airborne magnetic-electromagnetic survey.

Meanwhile, base metal exploration was again meeting with success in the 1950s in the La Ronge and Flin Flon areas. In the La Ronge area, Anglo-Rouyn Mines Ltd. began drilling on the copper showing, noted previously by McInnes and staked by the Hall brothers, in 1952. During 1955-57, the company carried out further drilling and some underground exploration but determined that the deposit was not economic due to poor accessibility and lack of infrastructure. Little further work was done until 1964.

The Peg copper-zinc-lead-silver-gold showing, discovered previously by trapper Lawrence McKenzie at Brabant Lake (about 145 km northeast of La Ronge), was staked by a syndicate in 1956. Paramount Petroleum and Minerals Corporation Limited and Westore Mines Limited drilled the deposit during 1956-58 and again in 1964. Rio Tinto Canadian Exploration Ltd. also drilled the deposit in 1964. More recently, Gamsan Resources Ltd. drilled the deposit in 1988-89. Ore reserves remain subeconomic.

Also, in 1956 prospector William McLeod found a mineralized boulder at Dead Lake, approximately 75 km north of La Ronge. In 1958 he found an outcrop of the lead-zinc-silver mineralization at Borys Lake, immediately north of Dead Lake. The showing was staked by Barry Richards that year. The Borys Lake deposit was drilled by Embassy Mines Ltd. in 1959, McIntyre Porcupine Mines Ltd. in 1965 and Husky Oil Operations Ltd. in 1971-72.

In the Flin Flon area, Hudson Bay discovered the Flexar copper(-zinc) deposit in 1952 and began shaft sinking on the nearby Birch Lake deposit that year; the Birch Lake mine commenced production in 1957 and reserves were exhausted in 1960. Also in 1952, further copper mineralization was discovered at Phil Lake, southwest of Flin Flon, as a result of saturation geophysics by Hudson Bay. The discovery would later become the Coronation mine.

About 65 km west of Flin Flon, Parrex Mining Syndicate discovered a small high grade lead-zinc-silver deposit beneath Hanson Lake in 1957. This would later become the Western Nuclear Mine.

Elsewhere in Saskatchewan, interest was initiated in 1953 in base metal mineralization in the Wollaston Domain. That year, during a regional search for uranium in the Foster Lakes area, Simon Eninew, prospecting for Eric Partridge, discovered a boulder with "copper stain but no copper" by the Wathaman River. Several further mineralized boulders were found in 1962. That year Falconbridge Nickel Mines Ltd. and Eric Partridge began a more thorough search which soon led to the discovery of the lead-zinc-silver -bearing 'Wathaman Boulder'. The discovery of this quartzite boulder prompted a search for lead-zinc mineralization throughout the Wollaston Domain. Several lead-zinc occurrences were found, culminating in the discovery of the George (Brakewell) Lake deposit in 1965. Subsequent diamond drilling determined the deposit to be subeconomic.

Also in the Wollaston Domain, Great Plains Development Company of Canada Ltd. located several interesting but uneconomic copper showings in the Pendleton Lake area in the mid-1960s.

1960-1980

In 1964 the Saskatchewan government introduced the Precambrian Assistance Plan to expand some of the concepts of the earlier Prospector's Assistance Plan to include exploration companies, whereby the government subsidized up to 50 per cent of the exploration costs, up to a maximum of $50,000 per year and/or a maximum of $150,000 per property. The program was in effect until the end of 1968.

The program stimulated considerable exploration activity, particularly regional-type airborne geophysical exploration and follow-up diamond drilling. Also, under the auspices of this program, the government undertook to construct a 10 km road into the Anglo-Rouyn site and to build the Hanson Lake road, connecting La Ronge with Flin Flon.

The road construction tipped the scales for Anglo-Rouyn Mines and in December, 1964 the company announced a production decision. The first shipment of concentrate was shipped to Flin Flon in early 1966. The mine operated from 1966-72.

Also in the La Ronge area, in 1965 Scurry Rainbow Oil Limited staked a nickel-copper showing at Gochager Lake, about 80 km north of La Ronge. Further north, operations commenced at the Rottenstone deposit in 1965. The deposit was mined by open pit in the summer and the nickel-copper-platinum-palladium(-silver-gold) concentrate was shipped to Sudbury during the winter. The first concentrate arrived in Prince Albert, Saskatchewan in March, 1966. The deposit was exhausted in 1968.

Near Flin Flon, Hudson Bay commenced mine development at the Flexar deposit in 1963. The Flexar copper(-zinc) mine operated from 1969 until reserves were depleted in 1972. West of Flin Flon, Western Nuclear Inc. announced a production decision in 1965 on the previously-discovered lead-zinc-silver mineralization at Hanson Lake. The first concentrate left the mine in June, 1967. The zinc concentrate was shipped to Flin Flon; the lead-copper concentrate was sent to Montana. The mine closed in 1969.

In the early 1970s, E.F. Partridge found several further zinc-lead occurrences in the Foster River area of the Wollaston Domain. Subsequent drilling at the Sito East and Fable Lake occurrences failed to prove economic mineralization.

Through most of the 1970s base metal exploration in the province stagnated.

1980-Present

Most of the more recent activity has been restricted to the area west of Flin Flon, especially under the Phanerozoic cover. The work has been stimulated by successes in neighbouring parts of the Flin Flon Domain in Manitoba. Here,

Hudson Bay (and joint venture partners) has recently brought to production the Trout Lake copper-zinc (1982), the Namew Lake nickel-copper (1989) and the Callinan copper-zinc (1989) mines.

In Saskatchewan, a significant copper-zinc deposit was discovered at Bigstone Lake, 90 km west of Flin Flon, by Granges AB in 1982. More recently, in 1988 Cameco announced the discovery of an important copper-zinc deposit at McIlvenna Bay, approximately 5 km south of the former Western Nuclear mine at Hanson Lake. This deposit is likely the next important base metal producer in the province. These recent major successes in the Flin Flon Domain underscore the vast potential of this greenstone belt.

Most recently, prospector David Partridge discovered lead-zinc-silver-gold mineralization near Deception Lake, approximately 230 km north of La Ronge, in September, 1989. Pine Channel Gold Corp. subsequently acquired the showing and optioned the property to Northair Mines Ltd. in late 1989. At the time of preparation of this report, Northair is carrying out a drill program on the showing.

PRODUCTION HISTORY

The Callinan Cu-Zn mine, straddling the Saskatchewan-Manitoba border, is currently the only base metal mine in production in Saskatchewan. There have been seven former base metal producers in the province (Table 1).

Coronation Cu-Zn-Ag-Au(-Se-Te-Cd) mine produced from 1960-64 and the Flexar Cu-Au mine produced from 1969-72.

Elsewhere in Saskatchewan other base metal

Table 1. Saskatchewan base metal and by-product production by mine (Base metals in lbs; precious metals in ozs.)

Mine	Year	Tons	Cu	Zn	Cd	Se & Te	Pb	Ni	Au	Ag	Pt	Pd
Anglo-Rouyn	1966-72	1,892,800	62,227,117	-	-	-	-	-	67,652	309,600	-	-
Birch	1957-60	307,265	33,750,845	40,560	74	43,235	-	-	813	30,780	-	-
Callinan	1989-											
Coronation	1960-64	1,412,861	107,936,503	4,960,196	12,464	118,041	-	-	75,055	167,437	-	-
Flexar	1969-72	337,146	25,236,754	-	-	-	-	-	10,111	-	-	-
Flin Flon	1930-89	69,346,000	N/A								-	-
Hanson Lake	1967-69	162,406	1,165,037	23,171,139	-	-	12,208,668	-	985	378,901	-	-
Rottenstone	1965-68	28,724	888,077	-	-	-	-	1,442,055	363	2,929	2,033	3,595

The first mine to reach production was the Flin Flon Cu-Zn mine, on the Saskatchewan-Manitoba border. This giant amongst Canadian Cu-Zn producers came on stream in 1930 and produced continuously until 1989. Exact production figures are not available. Of the total 69 million tons of ore from the mine, approximately 47 million tons (at an average grade of 4.2% Zn, 2.2% Cu, 1.23 oz/ton Ag and 0.07 oz/ton Au) were produced from the Saskatchewan side (Saskatchewan Geological Survey, 1987). As well as Zn, Cu, Ag and Au the Flin Flon mine produced significant quantities of Cd, Se and Te.

Other satellite Cu(-Zn) mines in the Flin Flon area came into production during the late 1950s to early 1960s. The Birch Lake Cu-Zn-Ag-Au(-Se-Te-Cd) mine produced from 1957-60, the producers operated during the late 1960s-early 1970s. The Anglo-Rouyn mine operated from 1966 until 1972 and produced Cu-Ag-Au. The Hanson Lake Zn-Pb-Cu-Ag-Au mine operated from 1967 until 1969. The Rottenstone mine, Saskatchewan's only primary nickel producer, operated from 1965 until 1968 and produced Ni-Cu-PGE-Ag-Au.

Total Saskatchewan base metal and by-product production according to commodity is given in Table 2 . These figures have been compiled from available records of Saskatchewan Energy and Mines for the period 1930 to 1987.

Annual production for each commodity during the period 1930 to 1987 is given in Figure 1a) to 1i) inclusive.

Table 2. Saskatchewan base metal and by-product production by commodity (1930-1987)

Commodity	Production	
Zn	2,622,149,202 lbs	1,189,183,311 kg
Cu	2,117,294,968 lbs	960,224,475 kg
Pb	13,162,350 lbs	5,969,320 kg
Cd	4,679,413 lbs	2,122,183 kg
Ag	45,932,018 oz	1,428,679 kg
Se & Te	2,390,152 lbs	1,083,969 kg
Ni	1,442,055 lbs	653,993 kg
Au	3,199,468 oz	99,517 kg
Pt & Pd	5,628 oz	175 kg

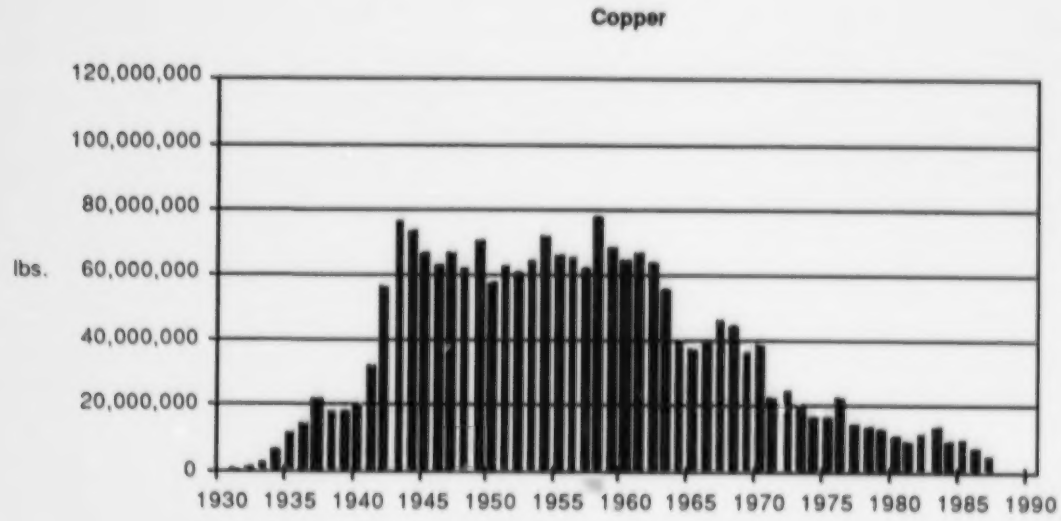


Figure 1(a). Annual copper production, 1930-1987 (Source: Files of Saskatchewan Energy and Mines).

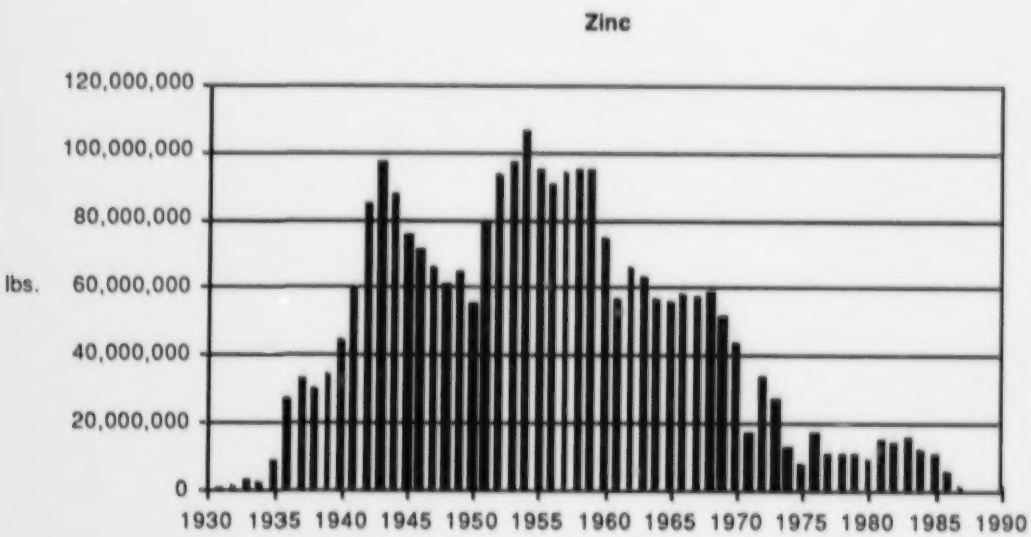


Figure 1(b). Annual zinc production, 1930-1987 (Source: Files of Saskatchewan Energy and Mines).

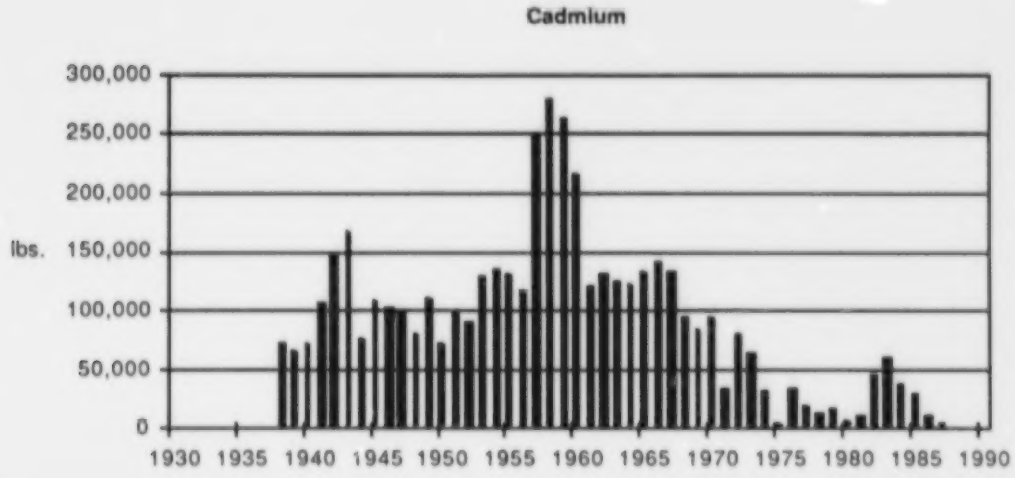


Figure 1(c). Annual cadmium production, 1930-1987 (Source: Files of Saskatchewan Energy and Mines).

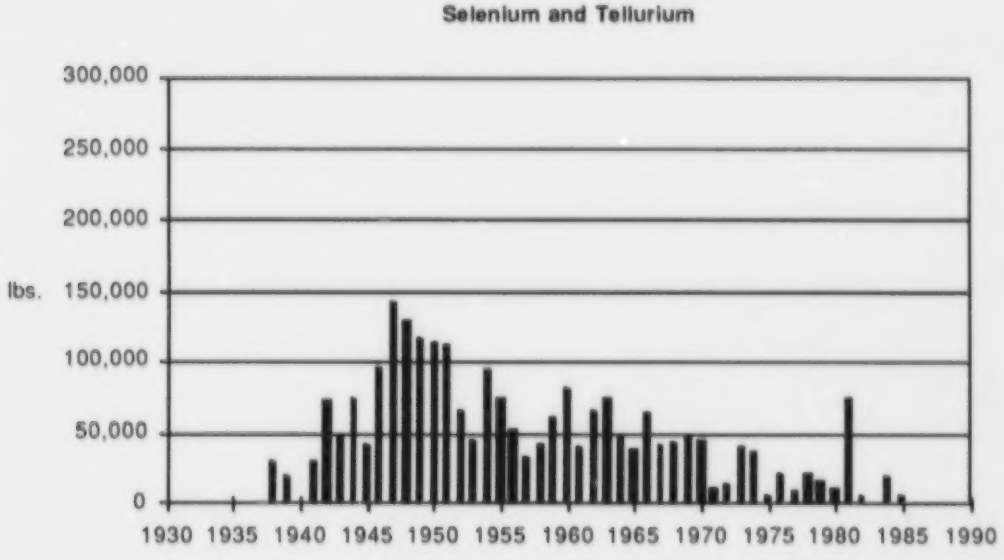


Figure 1(d). Annual selenium and tellurium production, 1930-1987 (Source: Files of Saskatchewan Energy and Mines).

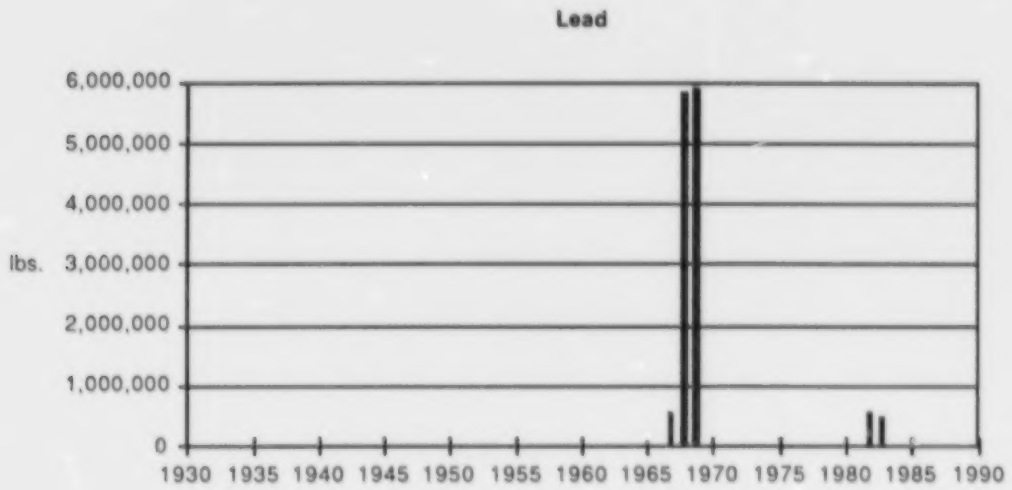


Figure 1(e). Annual lead production, 1930-1987 (Source: Files of Saskatchewan Energy and Mines).

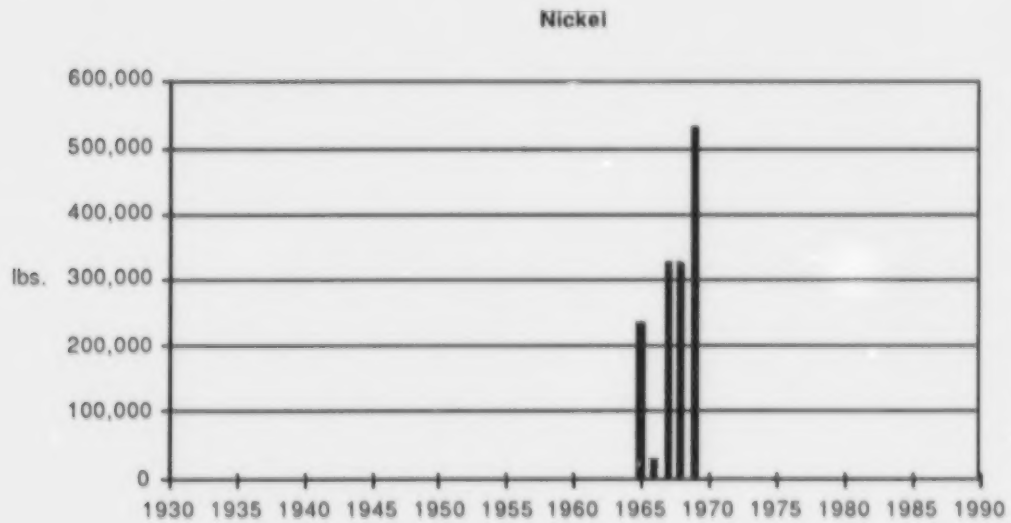


Figure 1(f). Annual nickel production, 1930-1987 (Source: Files of Saskatchewan Energy and Mines).

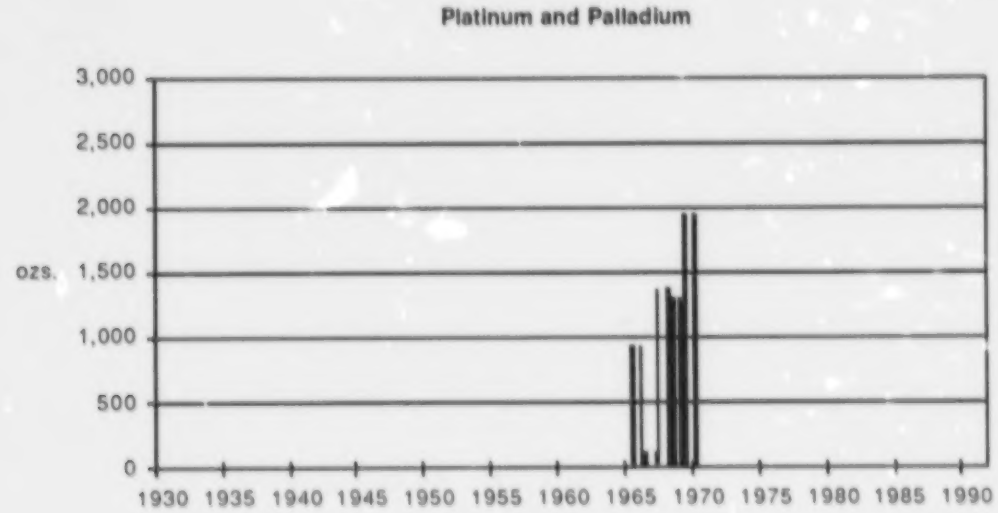


Figure 1(g). Annual platinum and palladium production, 1930-1987 (Source: Files of Saskatchewan Energy and Mines).

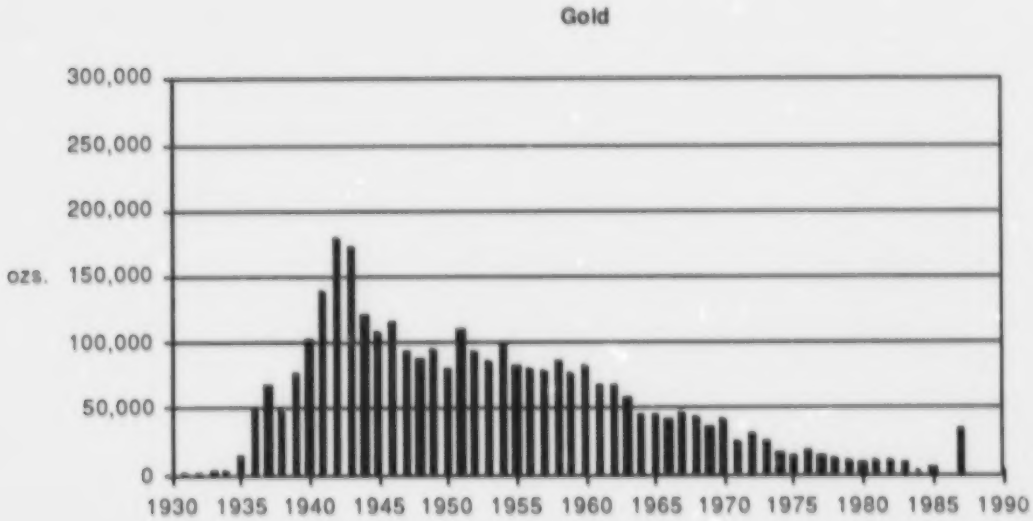


Figure 1(h). Annual gold production, 1930-1987 (Source: Files of Saskatchewan Energy and Mines).

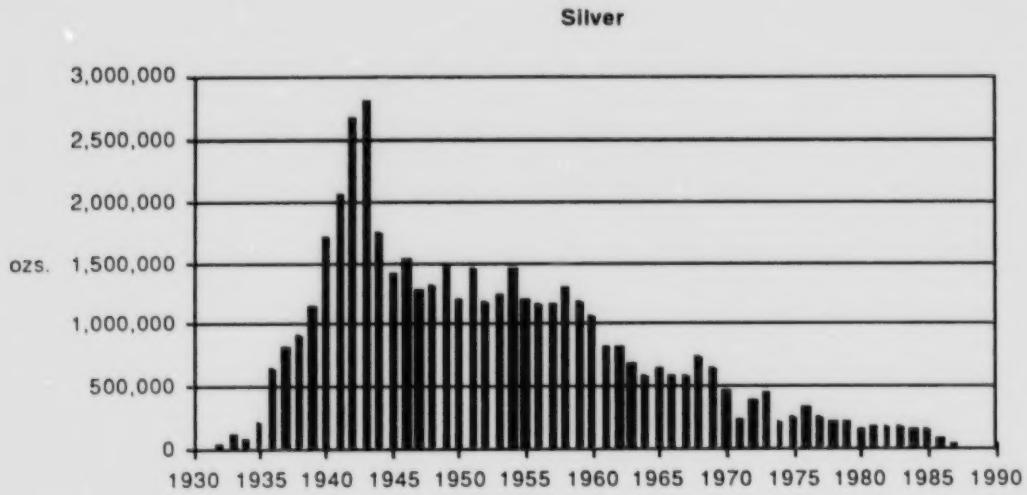


Figure 1(i). Annual silver production, 1930-1987 (Source: Files of Saskatchewan Energy and Mines).

GEOLOGICAL FRAMEWORK OF NORTHERN SASKATCHEWAN

General

Northern Saskatchewan is predominantly underlain by variably deformed and metamorphosed rocks of Archean (3070-3014 Ma.) to Helikian (1450-1350 Ma.) age. In the northwest, the Archean to Aphebian crystalline basement, influenced by Lower Proterozoic thermotectonic events, is overlain by redbeds of the Martin Group (and immediately underlying Thluicho Lake and Ellis Bay Groups) which were probably deposited during and immediately following the main Hudsonian event (ca. 1900-1800 Ma.). Immediately to the south, the metamorphic basement rocks are overlain by postmetamorphic sedimentary rocks of the Helikian Athabasca Group. Post-Hudsonian diabase dykes (ca.1400-1100 Ma.) are the youngest rocks in the Precambrian of northern Saskatchewan.

The metamorphic crystalline basement is part of the Trans-Hudson Orogen, a major Early Proterozoic orogenic belt that extended more than 5,000 km from the USA to Greenland (Lewry et al., 1985). In Saskatchewan the basement rocks have been grouped into three broad crustal regions: the Western Craton, the Cree Lake Zone and the Reindeer Zone (e.g. Macdonald, 1987). The ensialic Western Craton and Cree Lake Zone lie west of a major crustal 'break' (the Needle Falls Shear Zone); the ensimatic Reindeer Zone lies to the east (Fig. 2).

The Western Craton

The Western Craton (Lewry and Sibbald, 1977; Macdonald, 1987) forms part of the more extensive Keewatin Zone (Hoffman, 1989), which underlies contiguous parts of the Northwest Territories. The Western Craton is separated from the easterly-lying Cree Lake Zone by the Virgin River-Black Lake Shear Zone (Fig. 2). The latter zone of mylonitic rocks form part of the 3,000 km long 'Snowbird Line' (e.g. Crocker and Collerson, 1988) that has been variously interpreted as an intracontinental activation structure or a crustal suture within the Trans-Hudson Orogen(Carolan and Collerson, 1989).

The Western Craton comprises mainly Archean basement, Lower Proterozoic granite plutons and migmatites, and remnants of both Archean and Early Proterozoic supracrustal belts. South of the Athabasca Basin, it comprises the Western Granulite, Firebag and intervening Clearwater Domains. Geological chracteristics of these domains are given in Table 3.

North of the Athabasca Basin, the Western Craton is formed by several predominantly Archean cratonic blocks, bounded by mylonitic shear zones, and intervening terrains of reworked Archean and/or Lower Proterozoic retrogressed granulite facies rocks. Some of the geological characteristics of these domains are given in Table 4.

Cree Lake Zone

The Cree Lake Zone comprises, from west to east, the Virgin River, Mudjatik and Wollaston Domains (Fig. 2). It is a remobilized ensialic miogeoclinal zone to the Trans-Hudson Orogen, bounded on the west by the Virgin River-Black

Table 3. Geological Characteristics of the Western Craton, south of the Athabasca Basin[1]

Domain	Interpretation	Major Components	Zr Age (Ma.)[2]
Western Granulite	Weakly reworked craton	Retrogressed felsic to mafic granulites,	> 2290
		Clearwater Anorthosite Complex,	2000
		Layered mafic plutons, Junction Granite	1820
Firebag	Weakly reworked craton	Retrogressed granulites	
Clearwater	Strongly reworked	Granite, granite gneiss, Clearwater Granite	

[1] After Sibbald, 1986

[2] From Macdonald, 1987

Lake Shear Zone (Snowbird Line) and on the east by the Needle Falls Shear Zone. The mobile zone comprises a continuous Archean granitoid basement overlain by Aphebian supracrustals of mainly miogeoclinal affinity.The western and eastern margins of the mobile zone feature northeasterly fold trends with elongate mantled gneiss dome structures.

Virgin River Domain

The Virgin River Domain is predominantly

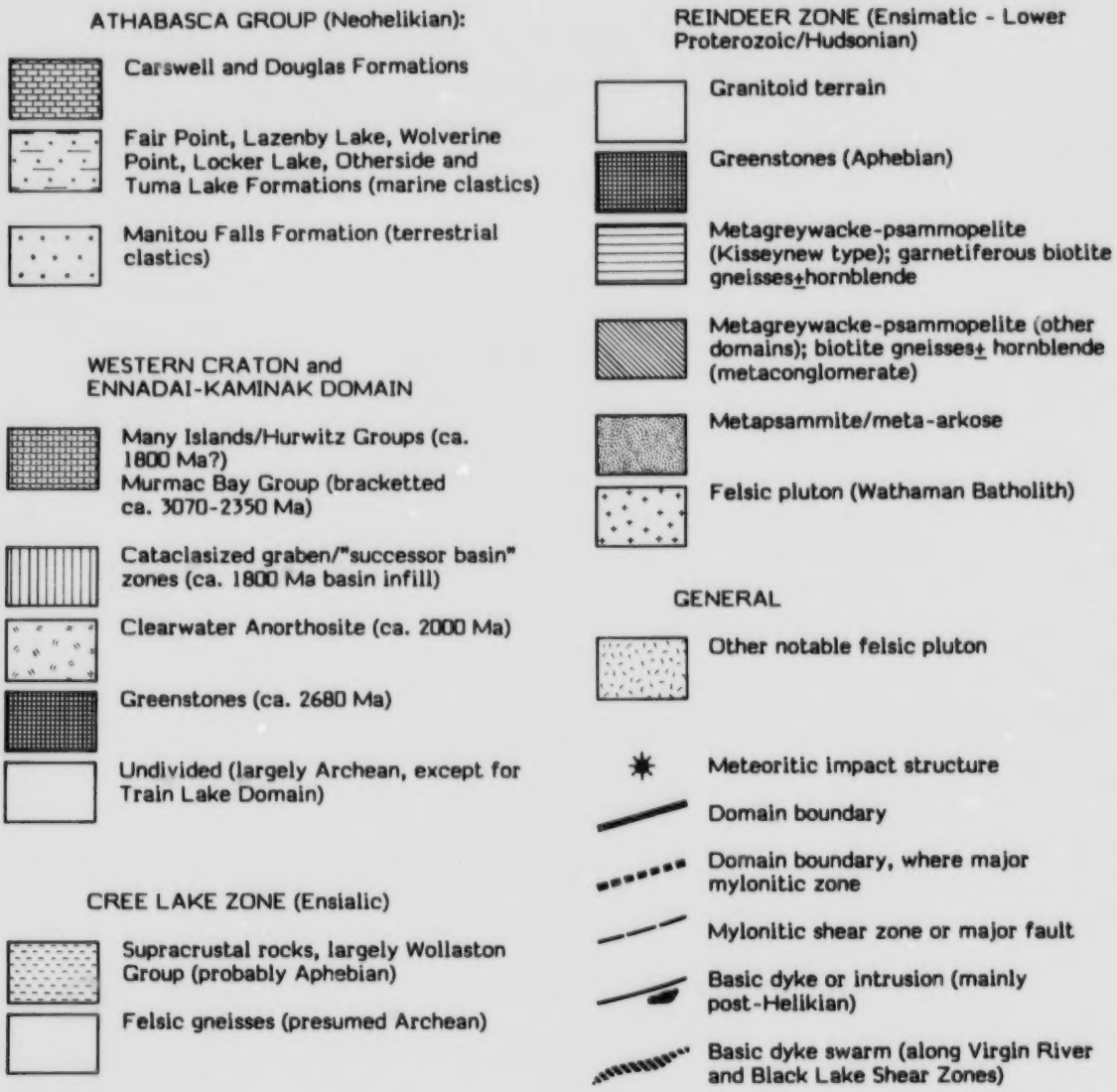

ATHABASCA GROUP (Neohelikian):
Carswell and Douglas Formations
Fair Point, Lazenby Lake, Wolverine Point, Locker Lake, Otherside and Tuma Lake Formations (marine clastics)
Manitou Falls Formation (terrestrial clastics)
WESTERN CRATON and ENNADAI-KAMINAK DOMAIN
Many Islands/Hurwitz Groups (ca. 1800 Ma?)
Murmac Bay Group (bracketted ca. 3070-2350 Ma)
Cataclasized graben/"successor basin" zones (ca. 1800 Ma basin infill)
Clearwater Anorthosite (ca. 2000 Ma)
Greenstones (ca. 2680 Ma)
Undivided (largely Archean, except for Train Lake Domain)
CREE LAKE ZONE (Ensialic)
Supracrustal rocks, largely Wollaston Group (probably Aphebian)
Felsic gneisses (presumed Archean)
REINDEER ZONE (Ensimatic - Lower Proterozoic/Hudsonian)
Granitoid terrain
Greenstones (Aphebian)
Metagreywacke-psammopelite (Kisseynew type); garnetiferous biotite gneisses±hornblende
Metagreywacke-psammopelite (other domains); biotite gneisses± hornblende (metaconglomerate)
Metapsammite/meta-arkose
Felsic pluton (Wathaman Batholith)
GENERAL
Other notable felsic pluton
Meteoritic impact structure
Domain boundary
Domain boundary, where major mylonitic zone
Mylonitic shear zone or major fault
Basic dyke or intrusion (mainly post-Helikian)
Basic dyke swarm (along Virgin River and Black Lake Shear Zones)

Figure 2. Geology of the Saskatchewan Precambrian Shield (from Macdonald, 1987)
Domain names are shown in capitals in abbreviated form.
Numbered features: 1, Murmac Bay Group; 2, Many Islands Group; 3, Ennadai Group; 4, Hurwitz Group; 5, Junction Granite; 6, Moore Lakes Complex; 7, Flourite-bearing late granites; 8, Gow Lake Impact Structure; 9, Deep Bay Impact Structure; 10, Campbell River Group; 11, Harriot Lake Enderbites; 12, Dobbin Lake Dykes, 13, Tremblay Lake Dykes; 14, Hickson Lake Pluton; 15, Sahli Granite; 16, Virgin River Schists; 17, George Lake area; 18, Meyers and Duddridge Lake area.
Shear Zones: BBSZ, Black Bay; GSRZ, Grease River; BLSZ, Black Lake; VRSZ, Virgin River; NFSZ, Needle Falls; PLSZ, Parker Lake; SSZ, Stanley; TSZ, Tabbernor.

granitoid with subordinate, thin supracrustal bands. A belt of greenstones and associated rocks (Virgin River Schist Group) lie along the western boundary of the Domain.

Recent evidence suggests that the lower amphibolite supracrustal rocks may include an early rift sequence (Carolan and Collerson, 1989).

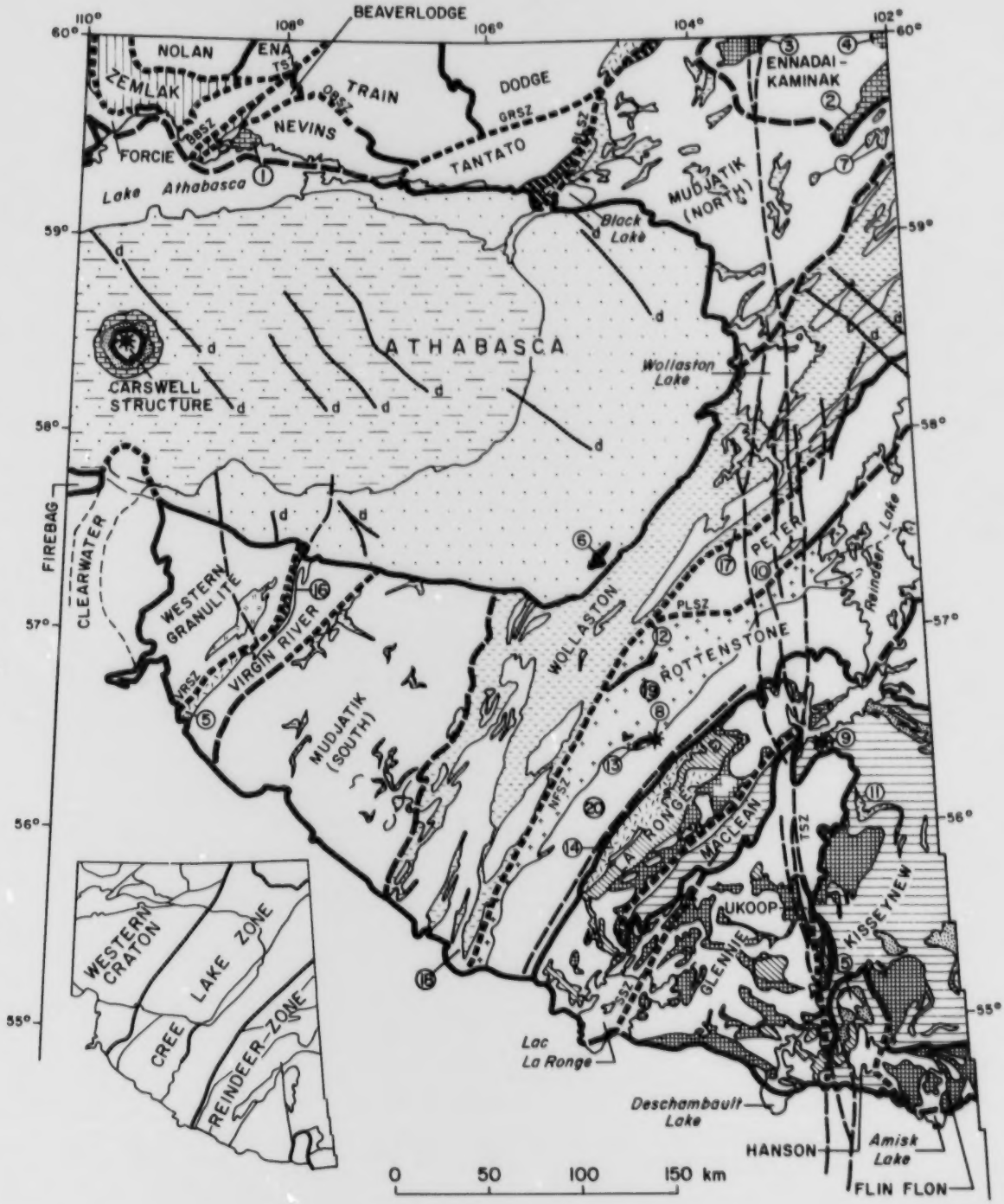


Table 4. Geological Characteristics of the Western Craton, north of the Athabasca Basin

Domain	Interpretation	Major Components	Age (Ma.)[1]
Dodge	Cratonic block	Partially retrogressed felsic to mafic granulites, Biotitic gneisses	Archean(?)
Tantato	Cratonic block	Partially retrogressed felsic to mafic granulites, Biotitic gneisses, Hypersthene-bearing mafic granulites ('norites')	Archean(?)
Nevins Lake Block	Cratonic block	Retrogressed felsic gneisses, garnetiferous gneisses, mafic gneisses and rare quartzite; in the Beaverlodge area the metamorphic grade is lower and a miogeoclinal sedimentary succession (Murmac Bay Gp.) overlies older basement (Lodge Bay Granite)	2315±60 (Rb-Sr) 2631±130 (Rb-Sr) 3070-3014
Nolan Block	Cratonic block	Nolan Granodiorite and associated plutons	2581-2639 2500-2300 (K-Ar)
Train Lake	Remobilized Belt	Migmatitc and granitic	1950±125 (Rb-Sr)

N.B. [1] Ages are U-Pb zircon, unless otherwise specified. All ages are from Macdonald (1987)

Mudjatik Domain

The Mudjatik Domain is the central part of the Cree Lake Zone and is formed mainly by felsic granitoid gneisses that probably represent Archean infrastructure. Narrow arcuate bands of supracrustal rocks, including metapelites, amphibolites and iron formation, define regional scale domes. The latter have attained amphibolite-granulite facies metamorphic grades and have been interpreted as migmatite lobes (Lewry and Sibbald, 1980).

Wollaston Domain

The Wollaston Domain forms the eastern margin of the Cree Lake Zone and comprises mainly Aphebian (2400-2000 Ma.?) supracrustal rocks. The latter overlie, and are interfolded with, subordinate felsic basement gneisses of probable Archean age. The latter commonly occupy the cores of doubly-plunging, northeasterly trending antiforms.

The supracrustal rocks are widely accepted by most workers to comprise a lowermost rift-associated assemblage of metavolcanics and sandstone-derived metapsammites (the Needle Falls Group, e.g. Coombe, 1979) and the overlying miogeoclinal sequence of the Wollaston Group.

Whilst plagued by mostly, as yet, unresolved facies changes, a relatively widespread stratigraphy has been recognized throughout the Wollaston Domain. In general, a lower sequence of variably graphitic metapelites, with intercalated narrow quartzite, calc-silicate and iron formation units, (the Pelite Unit) is overlain by an arkose-derived sequence (the Psammite Unit). Towards the east, in places, a metaquartzite unit is recognized at the base of the Pelite Unit. The latter is a significant host to lead-zinc mineralization in the Wollaston Lake vicinity.

Most workers (e.g. Lewry and Sibbald, 1980) believe a locally-developed succession of interlayered calc-silicates, amphibolites and quartzites (the "Hidden Bay Assemblage") forms the uppermost part of the Wollaston Group. The writer, based upon work in the George Lake area, south of Wollaston Lake, believes the "Hidden Bay Assemblage" may, in fact, be a

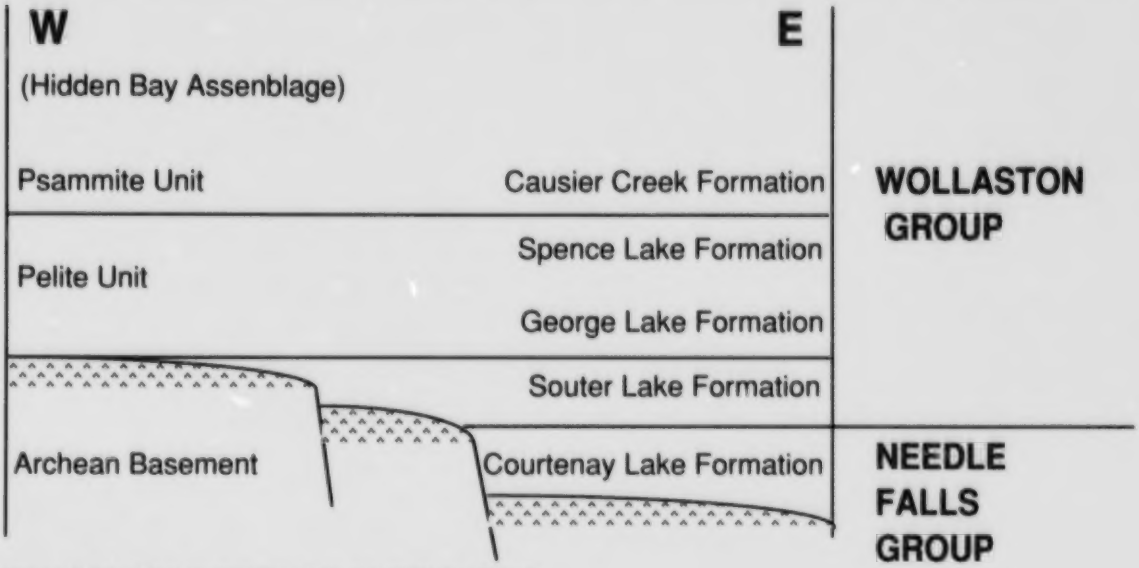


Figure 3. Simplified stratigraphy within the Wollaston Domain

lateral facies transition of the upper part of the Pelite Unit. A summary of the stratigraphy in the Wollaston Domain is given in Figure 3.

Ennadai-Kaminak Domain

The Ennadai-Kaminak Domain is somewhat anomalous but is included here for descriptive purposes.

The Ennadai-Kaminak Domain, in the northeastern corner of Saskatchewan, is chiefly underlain by the Archean (2682 Ma.; Macdonald, 1987) Ennadai Group of metavolcanics and metasediments and lesser carbonates and calc-silicate rocks that are correlated with the Proterozoic Hurwitz Group (e.g. Reilly, 1989). The Ennadai Group forms part of the Ennadai-Rankin greenstone belt that can be traced northeastwards to Rankin Inlet, Northwest Territories.

Reindeer Zone

The Reindeer Zone (Fig. 4) forms much of the southeastern portion of the Trans-Hudson Orogen in Saskatchewan and Manitoba. It comprises a collage of juvenile, arc-related accreted terrains that include the Rottenstone, La Ronge(-Lynn Lake), Glennie, Kisseynew and Flin Flon(-Snow Lake) Domains.

Most of the Reindeer Zone is formed by arc-related plutonic and volcanogenic rocks of Early Proterozoic age. Subordinate arkose- and conglomerate-derived molasse assemblages (e.g. Missi and McLennan Groups) overlie the volcanics in several places. Archean basement relicts are documented only in the Hanson Lake block.

Three predominant facies can be recognized in the Reindeer Zone, namely an arc facies, an inter-arc facies and a plutonic facies (Table 5).

La Ronge Domain

The La Ronge Domain includes the northeasterly trending Central Metavolcanic Belt (Coombe et al., 1986), which is continuous with the Lynn Lake Greenstone Belt of Manitoba. The belt hosts several important deposits of Cu-Zn and Ni-Cu in the vicinity of Lynn Lake. The Central Metavolcanic Belt is flanked to the northwest by the Crew Lake Belt and terminated to the southwest and northeast by the La Ronge Horseshoe and the Numabin Complex respectively (Fig. 4). The southeastern margin of the Central Metavolcanic Belt is defined by a ductile high strain zone (the McLennan Lake Tectonic Zone).

The **Central Metavolcanic Belt** is a generally westerly dipping, homoclinal assemblage of Aphebian ultramafic to felsic metavolcanics, intruded by ovoidal pre- to syn-kinematic diorite to granite plutons. The metavolcanics (the La Ronge Group) comprise predominant mafic to intermediate volcanics; felsic volcanics are abundant locally.

Table 5. Summary of Geological Characteristics of the Reindeer Zone

Facies	Domain	Major Components	Interpretation	Age(Ma.)[1]
Arc	La Ronge	Central Metavolcanic Belt	Oceanic island arc	1876-1882
		Crew Lake Belt	Back-arc greywackes	
		Numabin Plutonic Complex	Infrastructural arch	1834-1866
		La Ronge Horseshoe	Mainly plutonic infrastrucural arch	
	Glennie Lake	Arcuate volcanic belts	Oceanic island arcs	ca. 1870
		Granitoid gneisses, granitoids		1852-1836
	Flin Flon	Amisk Group volcanics and overlying Missi Group sediments	Oceanic island arc and molasse deposits	
		Pre- to post-Missi plutons		1880-1800
Inter-arc	MacLean Lake Belt	Volcanogenic greywackes (MacLean Lake Gneisses) and overlying molasse-type deposits (McLennan Group)	Fore-arc basin (?)	
	Kisseynew	Predominant pelitic-psammopelitic gneisses (Nokomis Group, Burntwood Supergroup), overlain by psammitic gneisses (Sherridon, Sickle and Missi Groups), Volcanogenic complexes (e.g. Scimitar Lake), Mafic and calc-silicate rocks	In large part, the higher grade equivalent of the Flin Flon and La Ronge Domains	
Plutonic	Rottenstone	Wathaman Batholith		1875-1865
		Rottenstone Migmatite Belt		
Enigmatic	Hanson Lake Block	Archean mantled gneiss domes (e.g. Sahli Granite)	Basement (?)	2500
		Volcanic and associated rocks		2500 (Rb-Sr) 1888
		Jan Lake Granite	Post-tectonic	1580±60 (Rb-Sr)

N.B.[1] All ages are U-Pb zircon, unless specified otherwise, from Macdonald (1987).

Ultramafic rocks (including peridotitic to dunitic intrusives and Mg-rich tholeiitic flows) form the lowermost part of the Group for much of the central portion of the Belt. They can be traced more than 150 km northeasterly to the vicinity of Lynn Lake, Manitoba (Fox and Johnston, 1981).

Mafic volcanics include a wide range of massive and pillowed flows and pyroclastic rocks. Intermediate andesitic to dacitic volcanics are extensive and include mainly massive flows and fragmental rocks. Felsic volcanics comprise predominant pyroclastic rocks; felsic volcanic centres have been documented locally, e.g. Waddy Lake area (Harper, 1984).

The La Ronge Group volcanics are mainly calc-alkaline (low Fe); some are low potash tholeiites (high iron) and a few are shoshonitic (Watters, 1984, 1985, 1986; Harper et al., 1986; Watters and Armstrong, 1985; Watters and Pearce, 1987). The volcanics are generally accepted as being emplaced in a suduction-generated island arc setting developed on oceanic crust (e.g. Lewry and Thomas, 1987; Macdonald, 1987).

Intravolcanic sediments are generally subordinate but locally well developed e.g. Waddy Lake area. Other sediments include volcanogenic conglomerates, iron formation and carbonate-rich argillites.

Metamorphic grade throughout the Central Metavolcanic Belt is generally lower amphibolite facies.

The **Crew Lake Belt** mainly comprises volcanogenic greywackes, derived from the La

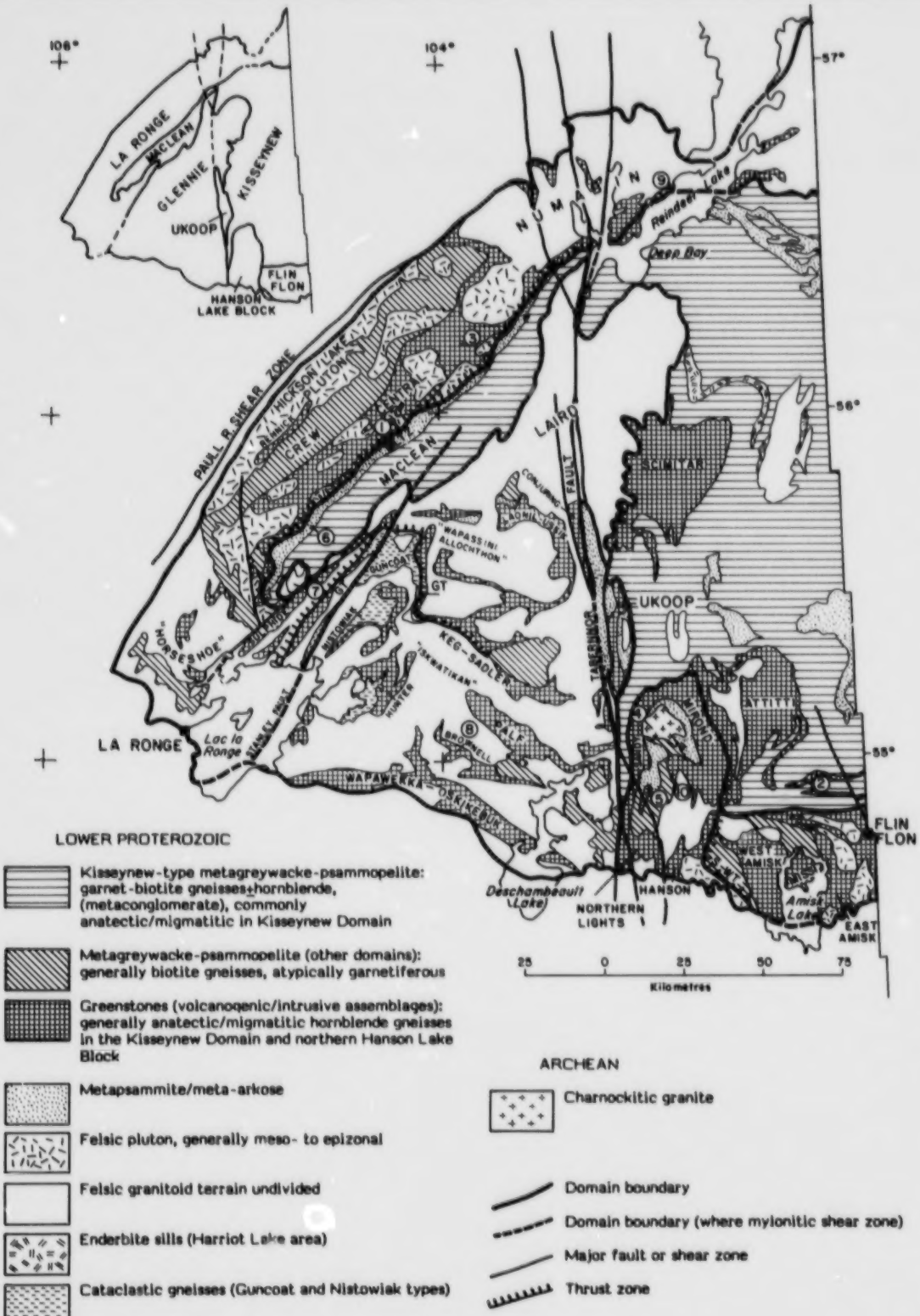


Figure 4. Geology of the Reindeer Zone, northern Saskatchewan (from Macdonald, 1987).

Ronge arc in a back arc position (Lewry,1984; Lewry and Thomas, 1987). The Crew Lake Belt merges into the migmatites of the Rottenstone Domain towards the northwest.

The **Numabin Complex** and **La Ronge Horseshoe** terrains are mainly granitoid plutonic complexes and are relatively high metamorphic grade.

Glennie Lake Domain

The Glennie Lake Domain lies east of the Stanley Shear Zone, a northeasterly trending belt of mylonites and tectonic schists, and west of the Tabbernor Zone. The latter comprises a northerly trending 'straight' belt of tight folds and includes the Tabbernor Fault, a major regional ductile-brittle shear zone with sinistral movement.

The Domain comprises mainly granitoid gneisses and granitoids. Subordinate volcanogenic rocks occupy narrow arcuate belts. Deformation and metamorphic grade (typically amphibolite facies) are generally higher than the La Ronge Domain.

An upper assemblage (the Wapassini Allochthon) of supracrustals and early plutons, possibly rooted in the La Ronge Domain, is separated from an underlying assemblage (the Iskwatikan Subdomain) by a major high strain detachment zone (the Guncoat Thrust, comprising highly strained and migmatized gneisses known as the Guncoat Gneisses) (Lewry, 1984).

Within the Iskwatikan Subdomain, Chiarenzelli et al., (1987) report the presence of Archean rocks (tonalitic and granitic gneisses of the Iskwatikan Lake Complex) enveloped by highly strained Guncoat-type gneisses (known as the Nistowiak Gneisses). The latter separate the Archean rocks from the surrounding Proterozoic rocks.

Flin Flon Domain

The Flin Flon Domain comprises predominantly Aphebian Amisk Group volcanics and overlying Missi Group sediments that are invaded by diverse ultrabasic to granitic rocks. The Amisk Group is formed mainly by subaqueous mafic to intermediate flows and pyroclastics. For the most part, felsic to intermediate flows and pyroclastics are subordinate, but they are predominant west of Amisk Lake. Sediments, including greywacke-turbidite, graphitic shale and iron formation, form a minor, but integral, part of the Group.

Various estimates exist for the thickness of the Amisk Group. These range from 4,300m in the vicinity of Flin Flon (Byers et al., 1965) to 9,000m in the Amisk Lake area (Ayres et al., 1981).

Fox (1976a, 1976b) and Ayres (1977) divide the Amisk Group into a lower, predominantly subaqueous, tholeiitic (Parslow and Watters, 1980) sequence of mainly mafic flows and an upper, subaerial, calc-alkaline (Fox, 1976a, 1976b; Walker and Watters, 1982) succession of intermediate-felsic flows and pyroclastics. This latter succession is, in turn, overlain in the Amisk Lake area by a thick sequence of volcanogenic sediments, including greywacke-turbidites, graphitic slate, argillite, quartzite and conglomerate (Byers and Dahlstrom, 1954; Fox, 1976a, 1976b).

The Missi Group, unconformably overlying the Amisk Group and up to 2,700m thick (Stauffer, 1974), comprises mainly subarkosic sandstones and conglomerates. The rocks were probably deposited in a fluvial-alluvial environment within active grabens.

Subvolcanic (?) ultrabasic and diorite-gabbro sills and stocks occur throughout the Amisk Group. A distinctly heterogeneous group of intrusives, ranging from ultrabasic to granitic (the 'Boundary Intrusions') occur in the vicinity of Flin Flon.

Felsic porphyritic intrusions occur throughout the volcanics. They are generally composite bodies that exhibit variable pervasive hydrothermal alteration, e.g. the Missi Island Vent Complex at Amisk Lake (Ayres, 1974; Chute and Ayres, 1977; Fox, 1976a, 1976b). In places the intrusives have associated copper-molybdenum mineralization, as reported elsewhere in the Flin Flon Domain in Manitoba (e.g. Baldwin, 1980).

Large post-Missi granodioritic plutons are conspicuous and form sill-like bodies west of Flin Flon.

The structure of the Flin Flon Domain is very complex. Stauffer and Mukherjee (1971) and Stauffer (1974) report three periods of deformation in the Missi Group. More recently, as a result of detailed revision mapping of the Flin Flon area in neighbouring Manitoba, five phases of folding (and attendant faulting) have

been described (Bailes et al., 1987). As well, recent mapping has established that the Manitoba portion of the Flin Flon Domain is characterized by at least 10 fault-bounded blocks. The latter exhibit coherent internal stratigraphies, but the faulting (thrusting?) precludes correlation between blocks.

Generally speaking, the grade of metamorphism within the Domain increases northwards from sub(?)-greenschist facies to lower amphibolite facies.

MacLean Lake Belt

The MacLean Lake Belt lies immediately east of the La Ronge Domain and comprises volcanogenic greywackes and intercalated fanglomerates (the MacLean Lake Gneisses) overlain by meta-arkoses of the MacLennan Lake Group. The latter can be traced into the Sickle Group of Manitoba in the Lynn Lake area.

With the possible exception of very local ambiguous stratigraphic younging relationships (e.g. Sibbald, 1971), the MacLennan Group is widely believed to overlie the La Ronge Group volcanics. The relation between the MacLean Lake Gneisses and the volcanics is currently enigmatic. However, most workers believe the greywackes are partly, at least, contemporaneous with the volcanics.

Metamorphic grades in the MacLean Lake Belt locally attained transtional granulite facies. Lewry (1984) describes the MacLean Lake Belt as a telescoped remnant of a fore-arc basin.

Kisseynew Domain

The Kisseynew Domain coincides with a large structural basin that is bounded to the north by the La Ronge-Lynn Lake Greenstone Belt, to the west by the Glennie Lake Domain and to the south by the Flin Flon Domain.

Metasedimentary gneisses predominate and comprise two major successions, namely the lower Nokomis Group and the upper Sherridon Group (Robertson, 1953). The Nokomis Group (referred to commonly as the Burntwood River Supergroup in Manitoba, e.g. Bailes and McRitchie, 1978) is formed mainly by migmatitic greywacke- and mudstone-derived pelites and psammopelites. A laterally persistent 'transitional zone', formed by volcanic- and/or sediment-derived amphibolites, carbonate-rich layers, minor quartzites and graphitic iron sulphide units occurs near the top (?) of the Nokomis Group. The latter zone is associated with several significant base and precious metal occurrences throughout the Kisseynew Domain of Saskatchewan and Manitoba.

The Sherridon Group is formed mainly by migmatitic arkose-derived psammites. Most workers believe these rocks are the equivalent of the Missi and Sickle/MacLennan Lake Groups of the Flin Flon and La Ronge Domains respectively.

The "Kisseynew-type" rocks are generally intensely deformed. Earlier deformation phases generated large scale nappe structures that were progressively refolded during later events. Metamorphic conditions attained upper amphibolite-granulite facies.

The relationships between the Kisseynew Domain and the flanking Flin Flon and La Ronge Domains have always been of considerable debate. Most contemporary workers suggest the Nokomis Group generally represents the lateral equivalent of the volcanic Amisk and Wasekwan (the Manitoba equivalent of the La Ronge volcanics) Groups.

More recently, several workers have succesfully traced discrete lithostratigraphic units from the Flin Flon Domain into the Kisseynew Domain. Indeed, Ashton (1989) now considers amphibolites and wackes of the Nokomis and Sherridon Groups, at least on the southern flank of the Kisseynew Domain, to represent high grade equivalents of the Amisk Group. Moreover, certain psammitic gneisses of the Sherridon Group (including those at the type locality of Sherridon, Manitoba) may represent high grade Amisk Group felsic volcanics and volcaniclastics (Ashton and Froese, 1988). These interpretations may have a profound effect on metallogeny and mineral exploration in the Kisseynew Domain.

Rottenstone Domain

The Rottenstone Domain is dominantly plutonic and formed by two major components: the Wathaman Batholith and the Rottenstone Migmatite Belt.

The Wathaman Batholith is part of the major late-tectonic, monzogranite to quartz diorite Wathaman-Chipewyan Batholith that extends across Saskatchewan and Manitoba.

The Rottenstone Migmatite Belt is formed by less than 20 per cent psammitic to psammopelitic metagreywacke paleosome extensively intruded by bodies of mainly tonalite- trondjhemite to granite neosome. Small intrusive ultramafic-mafic sills are present in places; one of these (at Rottenstone Lake) hosts high grade Ni-Cu-PGE mineralization.

Hanson Lake Block

The Hanson Lake Block is separated from the Glennie Lake Domain by the Tabbernor Fault in the west and from the Flin Flon Domain by the Sturgeon-Weir Thrust in the east. The Block comprises predominant metavolcanics with lesser meta-arkoses and granitoid rocks and the distinct charnockitic Sahli Granite. The latter has yielded an Archean age (Table 5) and may represent a mantled gneiss dome inlier.

The supracrustals are of uncertain age. The volcanics, especially in the lower metamorphic grade terrain to the south, strongly resemble the volcanics of the Flin Flon Domain. However, previous Rb-Sr dating had yielded an Archean age for the volcanics (Table 5).

More recently, Pb-Pb and U-Pb zircon dating have yielded early Proterozoic ages and shown that the Hanson Lake volcanics are essentially coeval with the Amisk Group to the east (Macdonald, 1987; Sibbald, 1989).

Conspicuous post-tectonic pegmatite sheets (Jan Lake Granite) occur throughout the Hanson Lake Block.

Peter Lake Domain

The Peter Lake Domain is bounded to the northwest by the Needle Falls Shear Zone and to the southeast by the Parker Lake Shear Zone. The relationships with the immediately contiguous westerly-lying Cree Lake and easterly-lying Rottenstone Domains are poorly understood. The Domain predominantly comprises felsic gneisses and granitoids that include Archean basement gneisses and granites and a variety of later, presumed Hudsonian granitic intrusives. Ultramafic to mafic plutonic bodies of probable Archean age are widespread and commonly exhibit primary igneous layering.

A narrow belt of slates, phyllites and meta-arenites with minor cherts and mafic metavolcanic rocks (the Campbell River Group) occurs in the southeastern part of the Domain. The age and relations of the group are unknown, although most workers believe the supracrustals are Aphebian age (e.g. MacDougall, 1987).

DISTRIBUTION OF BASE METALS IN NORTHERN SASKATCHEWAN

Base metal mineralization is found throughout northern Saskatchewan. However, the vast majority (73%) of the 148 significant base metal occurrences (i.e. those belonging to Classes 1 and 2) are found in the Reindeer Zone and, more particularly, in the La Ronge and Flin Flon Domains (Table 6).

Table 6. Distribution of significant base metal occurrences by major structural element

Element	Number	Per cent
Western Craton	25	17
Cree Lake Zone	15	10
Reindeer Zone	108	73
	148	

Copper Occurrences

The 90 known significant copper occurrences are mainly concentrated in the Western Craton and the Reindeer Zone (Tables 7 and 8; Fig. 5). The **Western Craton** contains 16 (17%) of the copper occurrences which are most conspicuous in the vicinity of Thluicho Lake and Ellis Bay, along the north shore of Lake Athabasca. Here, several chalcopyrite-bornite-chalcocite occurrences are predominantly hosted within variably mylonitized Archean (?) felsic gneisses of the 'Tazin Group', close to the unconformity with the overlying conglomerate-arkose succession of the Hudsonian (?) Thluicho Lake Group.

The **Cree Lake Zone** contains six (6%) of the known copper occurrences. Several significant native copper-chalcocite-chalcopyrite-bornite (-galena) occurrences are known in the Wollaston Domain in the vicinity of Pendleton Lake. The occurrences are mainly hosted within arkosic rocks of the Aphebian Wollaston Group.

The **Reindeer Zone** contains 68 (76%) of the significant copper occurrences. The latter are widespread but mainly concentrated in the La Ronge and Flin Flon Domains. Many of the occurrences comprise pyrite-pyrrhotite-chalcopyrite mineralization; sphalerite is locally conspicuous. The majority of the occurrences are associated with the Aphebian volcanic arcs; others occur within the Kisseynew Domain.

In the La Ronge Domain, volcanic-hosted occurrences are hosted in the La Ronge Group in the Waddy-May Lakes area, the Esmay-Neyrink Lakes area and the Lac La Ronge area. Most of these occurrences lie within mafic-intermediate volcanic sequences; some, including the former producing

Table 7. Distribution of significant base metal occurrences in northern Saskatchewan

	Copper		Lead		Nickel		Zinc		Totals	
	Deposits	Prospects	Deposits	Prospects	Deposits	Prospects	Deposits	Prospects	Deposits	Prospects
Western Craton										
Forcie Segment		1								1
Zemlack Block		10		1						11
Black Bay Belt		4		1						5
Nevin Lake Block		1			1				1	1
Tantato Domain					3	3			3	3
		16		2	4	3				
Cree Lake Block										
Virgin River Domain		1				1				2
Mudjatik Domain		1		1						2
Wollaston Domain		4		1			1	5	1	10
		6		2		1	1	5		
Reindeer Zone										
Rottenstone Domain				1	1			1	1	2
Peter Lake Domain		1								1
La Ronge Domain	2	16			3	2	2	7	7	25
Glennie Domain	3	9					1	4	4	13
Kisseynew Domain	1	4					1	1	2	5
Hanson Lake Block	1	7					2	6	3	13
Flin Flon Domain	3	21				1	3	4	6	26
	10	58		1	4	3	9	23		
Totals	**10**	**80**	-	**5**	**8**	**7**	**10**	**28**	**28**	**120**

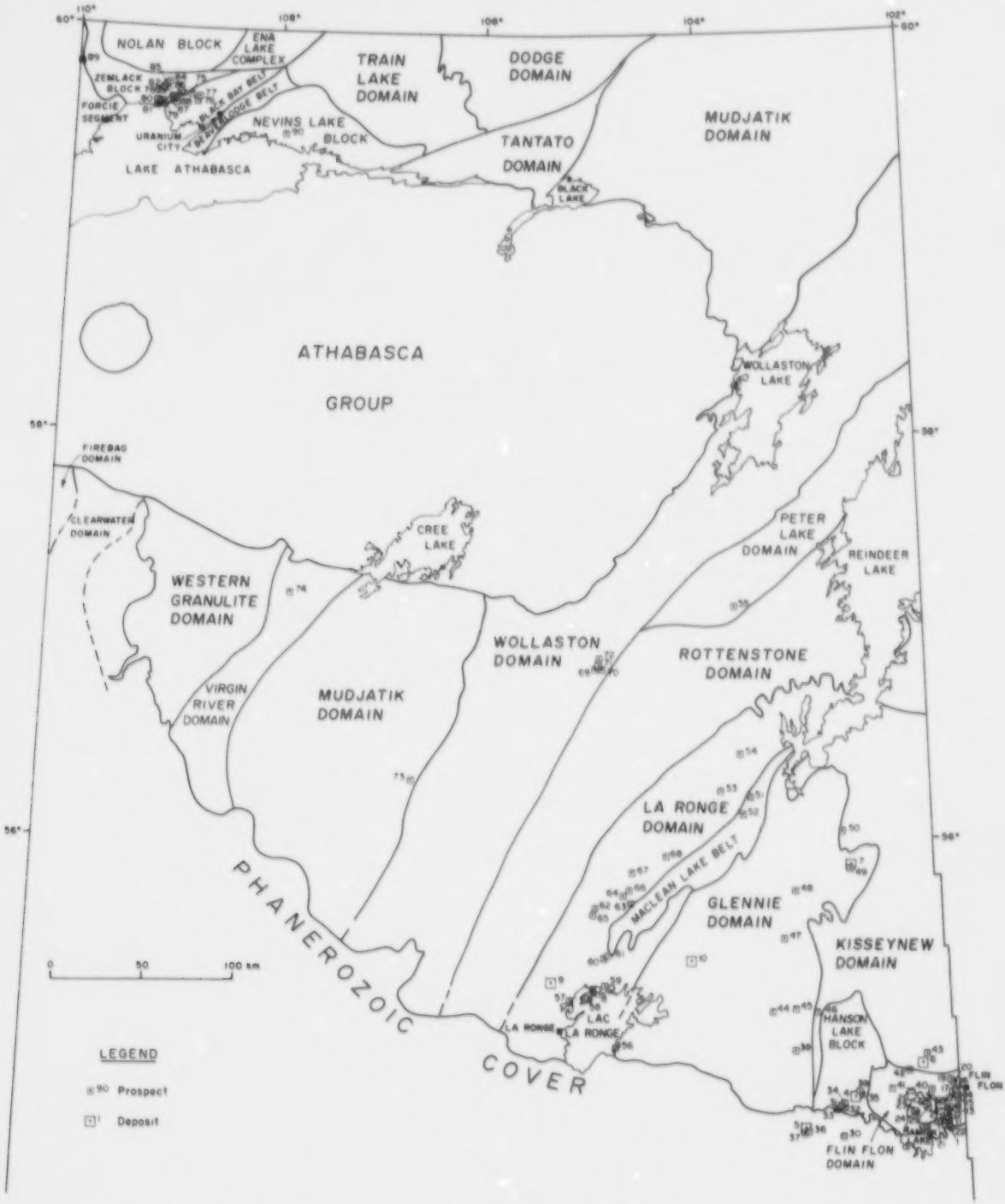


Figure 5. Distribution of significant copper occurrences in northern Saskatchewan.
Deposits: 1. Coronation mine, 2. Birch Lake mine, 3. Flexar mine, 4. Ramsay, 5. Bigstone, 6. Otonadah, 7. Mokoman Lake, 8. Anglo-Rouyn mine, 9. Elizabeth Lake, 10. Pitching Lake
Prospects: 11. Tanyss Lake N, 12. Barney Lake 1 (Tik 99), 13. Barney Lake 2 (Tik 89), 14. Dion Lake N, 15. Dion Lake S, 16. Bomber Lake (Kettle 1), 17. Douglas Lake N, 18. Mystic Lake (Tik 69), 19. Hamell Lake N, 20. Hamell Lake S, 21. Cable Lake, 22. Tanyss Lake W (Tik 145), 23. J. Brain, 24. Missi Bay, 25. Can, 26. Cougal Lake, 27. Curved Lake, 28. Echo Lake (Alf 35), 29. Hot (Grant Bay), 30. Miskat Lake, 31. Ann, 32. Bertrum Bay, 33. Side Lake, 34. Wings (Bluebird), 35. Wakisew Lake, 36. Big, 37. Way 9 (Bigstone Lake), 38. Rat 64 (Deschambault Lake), 39. Sewap Lake, 40. Sam (Wolverine Lake)

Table 8. Percent distribution of significant base metal occurrences by domain

	Copper	Lead	Nickel	Zinc
Western Craton				
Forcie Segment	1	0	0	0
Zemlack Block	11	20	0	0
Black Bay Belt	4	20	0	0
Nevin Lake Block	1	0	7	0
Tantato Domain	0	0	40	0
	17	**40**	**47**	**0**
Cree Lake Zone				
Virgin River Domain	1	0	7	0
Mudjatik Domain	1	20	0	0
Wollaston Domain	4	20	0	16
	6	**40**	**7**	**16**
Reindeer Zone				
Rottenstone Domain	0	20	7	3
Peter Lake Domain	1	0	0	0
La Ronge Domain	20	0	33	24
Glennie Domain	13	0	0	13
Kisseynew Domain	6	0	0	5
Hanson Lake Block	9	0	0	21
Flin Flon Domain	27	0	7	18
	76	**20**	**47**	**84**

Anglo-Rouyn deposit, are hosted in rocks of felsic volcanic affinity.

In the Glennie Lake Domain, copper occurrences are known throughout. They predominantly occur, once again, in arc-related volcanic belts. Important deposits occur at Pitching Lake, in the central part of the domain, at Mokoman Lake, in the northeastern part of the domain and at Bigstone Lake, in the southeastern portion of the domain.

In the Hanson Lake Block, copper occurrences are principally found in the vicinity of Hanson Lake. They are mainly hosted within volcanic rocks, e.g. Bertrum Bay, Wings. However, the Ramsay (Quandt) deposit occurs in volcanic-derived (?) amphibolites and associated pegmatitc rocks.

In the Flin Flon Domain, many important copper occurrences are found in the Flin Flon-Amisk Lake area. They are hosted within Amisk Group volcanics and include several former producing mines, i.e Coronation, Flexar and Birch.

In the Kisseynew Domain, significant copper occurrences are present in the Wildnest Lake area, close to the southern flank of the domain, e.g. the Otonadah deposit. They are mostly hosted in (volcanic-derived ?) amphibolitic units within the "Kisseynew-type" gneisses.

Lead Occurrences

There are only five noteworthy lead occurrences in northern Saskatchewan (Tables 7 and 8; Fig. 6). Sporadic occurrences are found in the Western Craton (in the area north of Lake Athabasca) and in the Cree Lake Zone.

The more important prospects are found in the Cree Lake Zone. Here lead mineralization is hosted within Aphebian quartzites of the Mudjatik (i.e. Segment Lake occurrence) and contiguous Wollaston (i.e. Marina occurrence) Domains.

41. Abbott Lake, 42. Johnson Lake, 43. Teejay (Cot, Vass Lake), 44. Hook Lake, 45. Moth (Wood Lake), 46. Wood Lake E, 47. Uskik Lake, 48. Bur (Pete Lake), 49. Mokoman Lake S, 50. Crawford (Pistol Lake), 51. Hook Lake (Brabant Lake NE), 52. Betty (Redhill Lake), 53. Churchill Minerals (Rio, Nistoassini Lake), 54. May Lake NE, 55. Korvin Lake, 56. Ab (Edna, Documun Bay), 57. Lac (English Bay), 58. Williams Peninsula, 59. Dam-Crescent Lakes, 60. MacKay Lake-Teneycke Lake, 61. Nemi, 62. Kas (Nipew Lake), 63. Bandur Lake, 64. Quartz (Esmay Lake S), 65. Rosie (Nipew Lake), 66. Vuku (Esmay Lake N), 67. Kel (Forbes Lake), 68. Frog Lake (Neyrink Lake), 69. Jan (Janice Lake), 70. Juno, 71. Kaz, 72. Rafuse Lake, 73. Holmlund (Blob) Lake, 74. Moss Lake, 75. Dianne Lake, 76. Lake (Webb Lake S), 77. Pete (Webb Lake N), 78. Bob Lake, 79. Ellis Bay NE (Showings 1 to 5), 80. Ellis Bay NW (Showings 7 to 9), 81, Ellis Bay S (25 Zone), 82. Hearne Lake E, 83. Maimann Lake, 84. Pring Lake NE, 85. Pring Lake SW, 86. Thluicho Lake E, 87. Waterloo Lake W, 88. Waterloo Lake S, 89. Unger Lake, 90. Roberts Lake

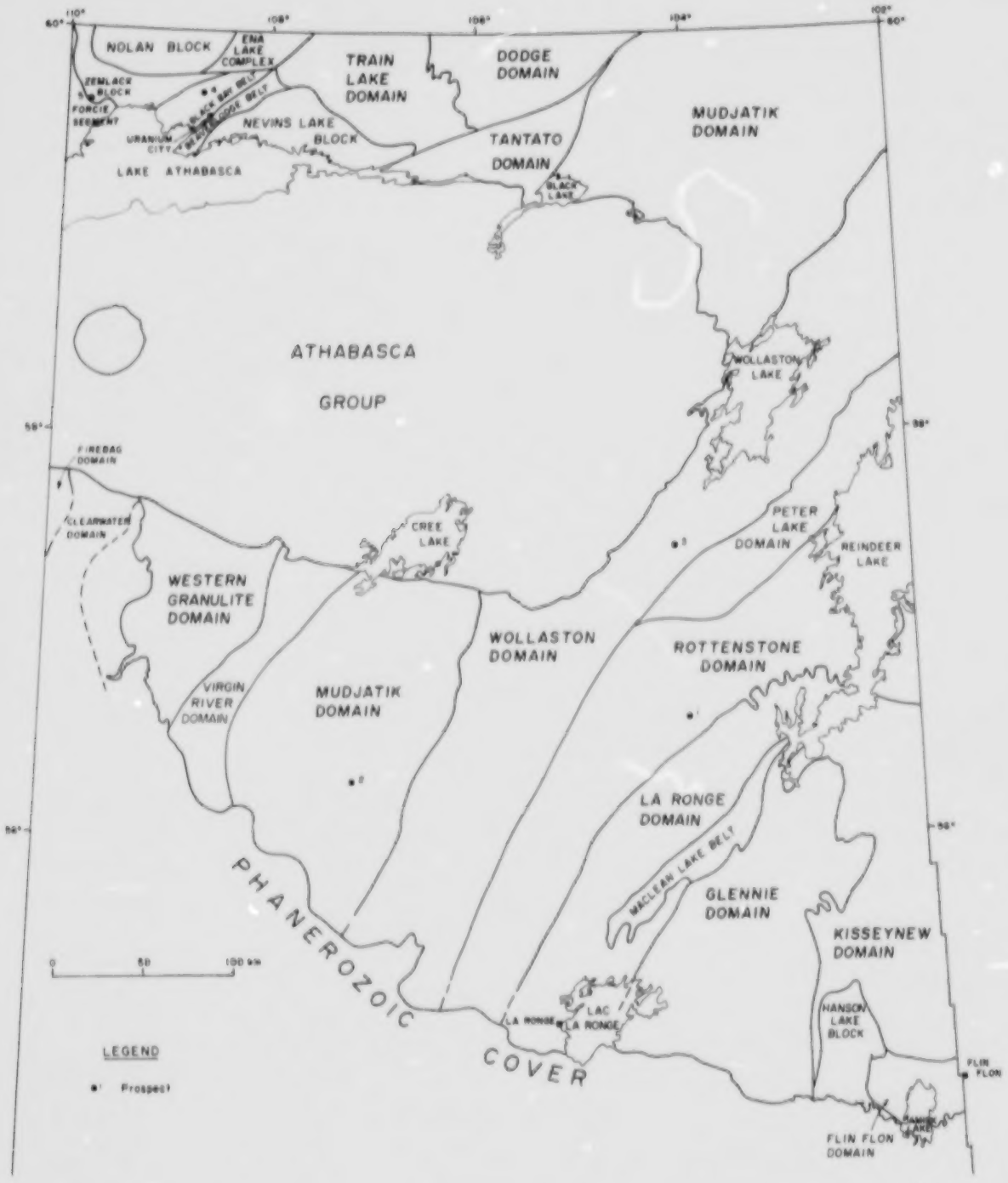


Figure 6. Distribution of significant lead occurrences in northern Saskatchewan.
Prospects: 1. Deception Lake, 2. Segment Lake, 3. Marina (Johnson Lake N), 4. LeBlanc Lake (Upper Showing), 5. Harper Lake

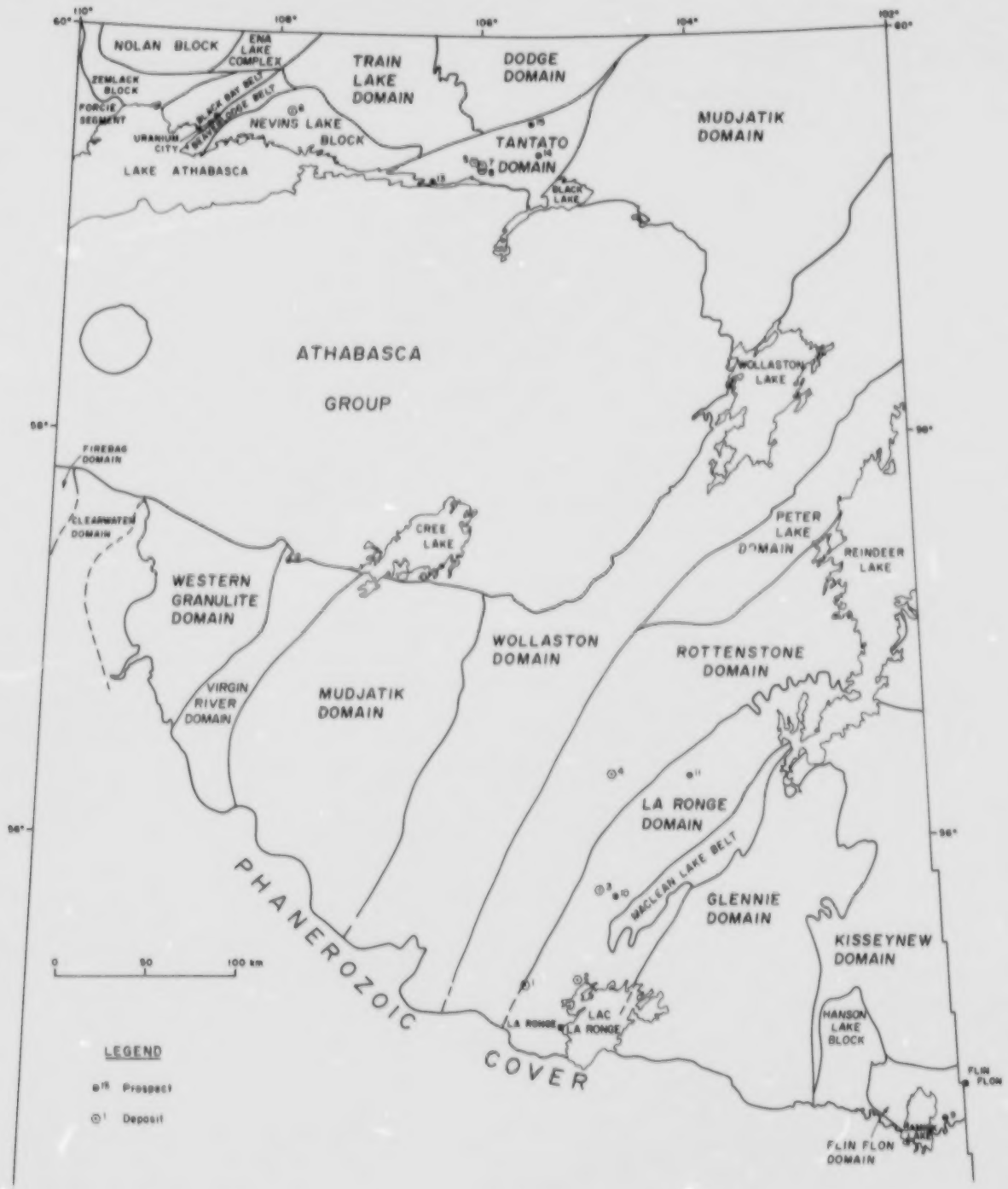


Figure 7. Distribution of significant nickel occurrences in northern Saskatchewan.
Deposits: 1. Howard Lake, 2. Mac (National Nickel, Nemeiben Lake), 3. Gochager Lake, 4. Rottenstone mine (Hall deposit), 5. Currie Lake, 6. Dinty Lake, 7. Axis Lake, 8. Rea (Carp Lake)
Prospects: 9. Table Lake, 10. Mal Lake, 11. Reef Lake, 12. Westgate Lake, 13. Lad (Cole Lake), 14. Cora Lake, 15. Dumas Lake (A, B, C and D Zones)

Nickel Occurrences

There are 15 important known nickel occurrences in northern Saskatchewan. They are located in all three major elements of the Precambrian Shield. However, they are most predominant in the Western Craton and the Reindeer Zone (Tables 7 and 8; Fig. 7).

The **Western Craton** contains seven (47%) important nickel occurrences that lie north of Lake Athabasca. At Dinty Lake pyrrhotite-chalcopyrite(-cubanite-sphalerite) mineralization is hosted in an Archean norite body of the Nevins Lake Block. Elsewhere in the Western Craton, several important nickel occurrences are present in the Tantato Domain, north of Fond du Lac. Here the Axis Lake, Rea and Currie Lake Ni-Cu(-Co) deposits are also hosted within Archean (?) norite.

The **Reindeer Zone** also contains seven (47%) significant nickel occurrences that are located mainly in the La Ronge and Rottenstone Domains. They comprise predominantly pyrrhotite-pentlandite-chalcopyrite mineralization that is typically hosted within sill- to plug-like ultramafic-mafic bodies.

In the La Ronge Domain, nickel occurrences are conspicuous in the southern part of the domain where they are present in the La Ronge Horseshoe terrain and the Crew Lake Belt. In the La Ronge Horseshoe important deposits occur at Howard and Nemeiben Lakes. The latter deposit is somewhat anomalous in that the host layered ultramafic body is circular in plan view. In the Crew Lake Belt, significant deposits occur at Gochager and Reef Lakes.

In the Rottenstone Domain, the former producing Rottenstone mine occurs near Rottenstone Lake. The deposit, formed by pyrrhotite-chalcopyrite-pentlandite mineralization, is hosted by an ultramafic sill-like body. The deposit is anomalously rich in precious metals, including PGE's, gold and silver.

Zinc Occurrences

There are 38 known significant zinc occurrences in northern Saskatchewan. They are restricted to the Cree Lake and Reindeer Zones (Tables 7 and 8; Fig. 8). The **Cree Lake Zone** contains six (16%) important occurrences that are found along the eastern margin of the Wollaston Domain. They comprise pyrite-pyrrhotite-sphalerite-galena mineralization that is typically hosted within quartzitic rocks of the Aphebian Wollaston Group.

Mineralization is most conspicuous in the Sito Lake (i.e. Fable Lake, Sito East and Sito West occurrences) and Morell Lake (i.e. George Lake deposit and Hills Lake and Johnson Lake occurrences) areas.

The **Reindeer Zone** contains 32 (84%) significant zinc occurrences. The vast majority of these occurrences are hosted in the arc-derived volcanic belts, e.g. May Lake area (La Ronge Domain), Brownell and Gee Lake areas (Glennie Lake Domain), Hanson Lake area (Hanson Lake Block), and West Amisk and Flin Flon areas (Flin Flon Domain). As well, important occurrences are found in the Kisseynew Domain.

The volcanic-associated occurrences include an important new discovery in the Hanson Lake Block in the vicinity of Hanson Lake, i.e. the McIlvenna Bay deposit.

The occurrences generally exhibit similar gross characteristics to the volcanic-associated copper occurrences referred to above, to which they are clearly related.

Somewhat enigmatic, but significant, zinc deposits occur in the La Ronge Domain. In the MacLean Lake Belt, sphalerite-chalcopyrite -galena mineralization is hosted primarily within pegmatites and adjacent gneisses at the McKenzie (Peg) deposit, Brabant Lake. In the Crew Lake Belt sphalerite-galena mineralization at the Will deposit is hosted within calc-silicates and amphibolitic rocks at Borys Lake, near Nipew Lake.

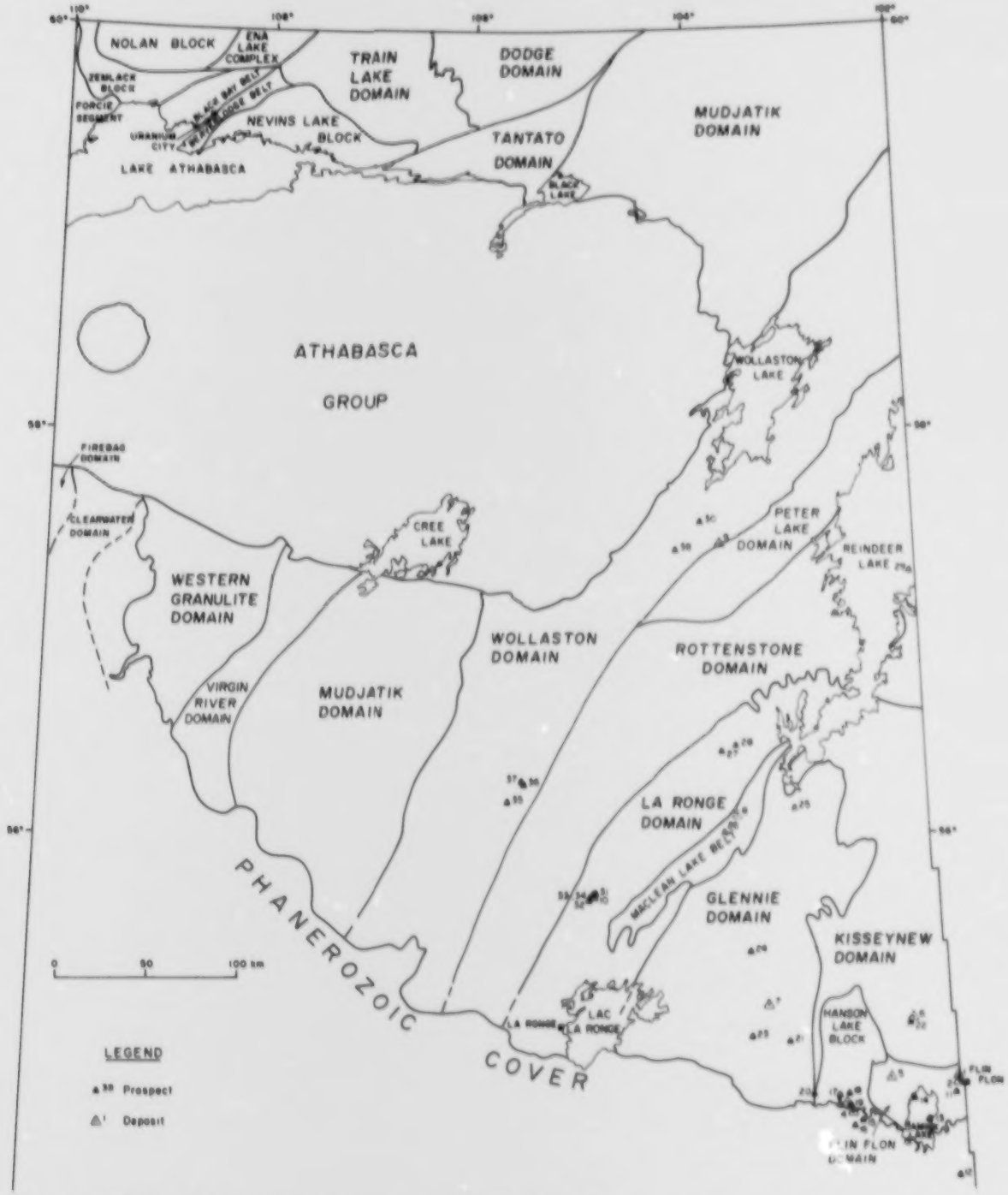


Figure 8. Distribution of significant zinc occurrences in northern Saskatchewan.
Deposits: 1. Callinan mine, 2. Flin Flon mine, 3. Hanson Lake mine, 4. McIlvenna Bay, 5. Fon, 6. DRS (Schotts Lake), 7. HBED, 8. McKenzie, 9. George Lake, 10. Will
Prospects: 11. Rio SW, 12. Foy Creek, Sturgeon Weir River, 13. Chamney Island, Amisk Lake, 14. Missi Island (Clare), 15. Balsam, 16. Grid B Showing (Hobbs Lake), 17. Jackpine Lake, 18. Young Peninsula, Hanson Lake, 19. Zinc Zone, 20. Rede, 21. Rat 16 (Deschambault Lake), 22. Nest (Wildnest Mines), 23. Brownell Lake, 24. Sun (Norum Lake), 25. Linda (McCullum Lake), 26. Wep (Main Lake), 27. Elephant Lake, 28. May Lake N, 29. Brown (Paskwachi Bay), 30. Hills Lake, 31. Mac, 32. Can, 33. Will A (12,17 claims), 34. Will B (8,13 claims), 35. Fable Lake, 36. Sito East, 37. Sito West, 38. Johnson Lake (Marina S)

REGIONAL METALLOGENY

General

For a meaningful discussion of the regional metallogeny in northern Saskatchewan, it is necessary to understand the distribution of base metal mineralization in both time and space. Temporal constraints of host rocks to mineralization in the Shield area are now reasonably well defined (e.g Macdonald, 1987; Van Schmus et al., 1987). However, extensive age dating of mineralization itself is lacking. Model lead ages from lead isotope studies of galena from a wide variety of mineral occurrences (i.e. Cumming et al., 1970; Franklin, personal communication,1979; Sangster, 1972, 1978; Sinha, 1970) generally support current metallogenic views.

The distribution of base metal occurrences, both with regard to commodity-type and deposit-type, is a clear reflection of the crustal evolution of the Precambrian Shield. As discussed previously, the Shield area essentially comprises a major two-fold division (Coombe, 1979).

To the west and northwest (i.e. west of the Needle Falls Shear Zone) heterogeneous remnants of Archean cratonic blocks are conspicuous. They are variably reworked (during the Hudsonian) and are generally believed to represent parts of a larger ensialic Archean 'Churchill Craton'. The blocks locally include a typical Archean greenstone belt (i.e. the Ennadai Belt), Archean miogeoclinal-type sedimentary sequences (e.g. the Murmac Bay Group) as well as other Archean supracrustal assemblages of less obvious heritage.

The 'Churchill Craton' hosts significant Archean magmatogenic Ni deposits north of Lake Athabasca. There are few reports of other significant base metal occurrences in the cratonic blocks. Such occurrences may be present. For example, the Ennadai-Kaminak Domain represents the southwestern portion of the Archean Ennadai-Rankin Inlet greenstone belt that hosts important deposits further to the northeast in the Northwest Territories.

The Archean basement rocks are overlain, in the more easterly parts of the cratonic region, by the Aphebian miogeoclinal-type Wollaston Group sediments. The latter host a diverse suite of sandstone-type Cu(±U), Pb and Zn occurrences (e.g. Sangster and Kirkham, 1974).

To the east and southeast (i.e. east of the Needle Falls Shear Zone), the ensimatic Reindeer Zone is formed by a collage of Aphebian arc-related accreted terrains. In contrast to the more westerly part of the Shield, relict Archean basement is rare; it has only been documented in the Hanson Lake and Iskwatikan Lake areas.

The Reindeer Zone hosts diverse commodities and Lower Proterozoic deposit-types that reflect the ensimatic nature of the region. Important occurrences of Cu, Pb, Ni and Zn are found throughout the region.

Volcanogenic massive sulphide deposits of Cu-Zn and Zn-Pb-Cu form the economically most important deposit-types. Both more 'proximal' and more 'distal' types occur within the Aphebian volcanic arc and interarc facies. The deposits all exhibit varying tectono-metamorphic modification.

The volcanic arcs also locally host 'porphyry-style' Cu(-Mo) mineralization, particularly in a volcanic vent setting.

Important magmatogenic Ni(-Cu) deposits occur in a variety of settings throughout the Reindeer Zone.

Archean-Kenoran Metallogeny

As noted above, there are few reported Archean base metal occurrences in Saskatchewan. The best known ones include the magmatogenic Ni deposits north of Lake Athabasca, i.e. the Dinty and Axis Lake deposits.

The Dinty Lake deposit occurs within a layered ultramafic-mafic sill that intrudes Archean felsic gneisses of the Nevins Lake Block. Hulbert (1987) reports that the Dinty Lake 'noritic' body was originally a layered intrusion comprising anorthosite, anorthositic norite, norite, feldspathic pyroxenite and pyroxenite. Metamorphism subsequent to the granulite facies generated garnetiferous equivalents in the more anorthositic units. Primary magmatogenic sulphide-silicate textural features are well preserved.

The Axis Lake deposit lies within 'norite' of the Archean (?) Tantato Domain (Fig. 9). The Tantato Domain also contains several other important 'norite'-hosted nickel deposits, e.g. Currie Lake, Lad, Cora, Dumas Lake. Here, 'norite' is generally regarded as representing metamorphosed, differentiated pyroxenite-norite

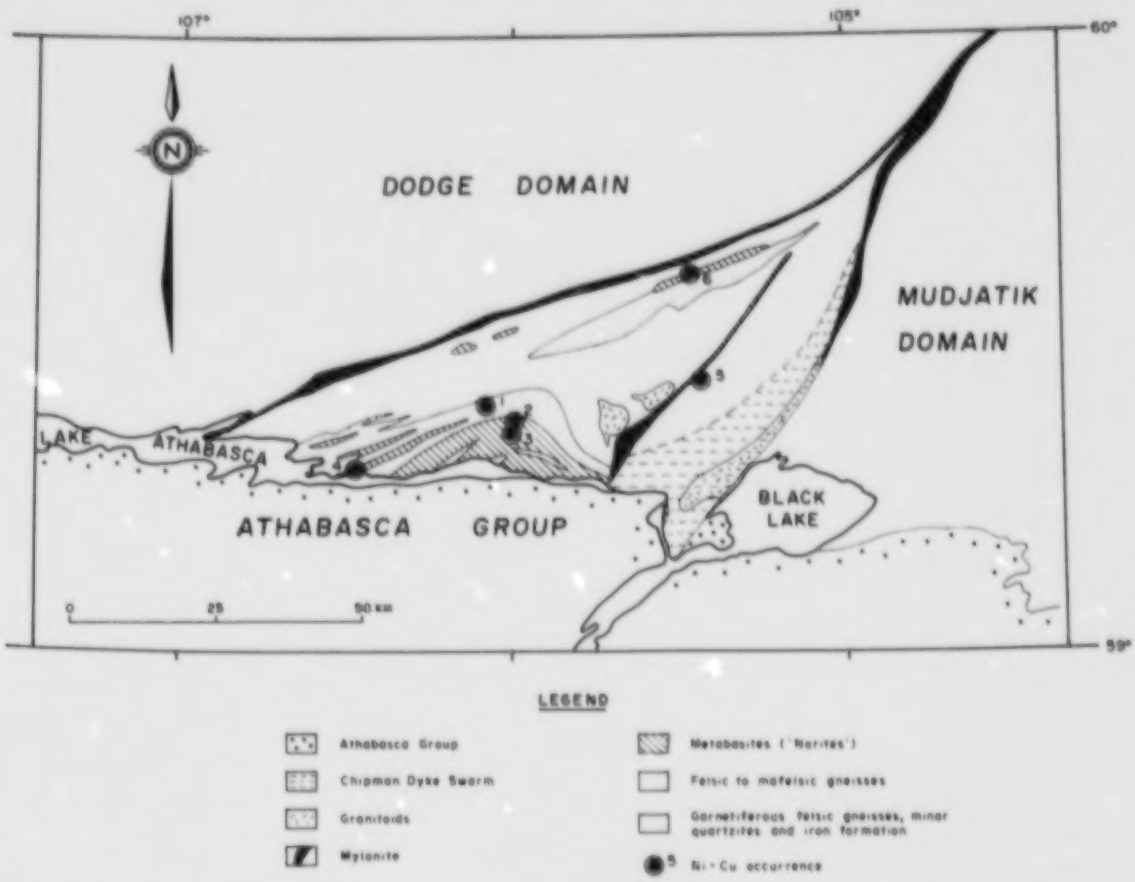


Figure 9. Distribution of intrusion-hosted nickel-copper deposits in the Tantato Domain (geology after Macdonald and Broughton, 1980).
Deposits: 1. Currie Lake, 2. Axis Lake, 3. Rea (Carp Lake)
Prospects: 4. Lad (Cole Lake), 5. Cora Lake, 6. Dumas Lake (A, B, C and D Zones)

sill-like intrusives. As at Dinty Lake, original magmatic sulphide-silicate textures are well preserved. In contrast, however, the sill-like 'norite' bodies in the Tantato Domain range up to 8,000 m thick (Hulbert, 1988).

The origin of these differentiated sills remains enigmatic. However, they may represent early, primitive oceanic crust.

The enigmatic Peter Lake Domain, lying between the Cree Lake and Reindeer Zones, includes a large late-Archean layered ultramafic-mafic (pyroxenite-ferrogabbro) complex. The domain may represent late-Archean rift-related magmatism. The complex locally contains two types of Ni-Cu mineralization: an older disseminated, low grade magmatogenic mineralization and a younger (Hudsonian ?) hydrothermal mineralization (with elevated PGE values). The latter is associated with northerly trending faulting (Hulbert, 1986).

Aphebian-Hudsonian Metallogeny

Metallogenesis during Lower Proterozoic times is much more clearly understood than during Archean-Kenoran times. This is largely due to the fact that recent work in the southeastern part of the Shield has recognized that large scale plate tectonic processes prevailed during the Lower Proterozoic.

Early Rifting and Sandstone-Type Deposits of the Wollaston Domain

Many workers believe that, during the late-Kenoran(?) to early-Aphebian, large scale

rifting occurred within the Archean sialic basement. Part of this extension took place, more or less, along the trend of the present site of the Needle Falls Shear Zone, i.e. along the eastern margin of the present-day Wollaston Domain.

Rift-type supracrustal sequences (i.e. the Needle Falls Group) are well preserved at several localities (e.g. Courtenay-George Lakes area, Duddridge Lake) along the eastern margin. In the Duddridge Lake area, red-bed type meta-arkoses host subeconomic concentrations of Cu-U mineralization (Fig. 10). The style of mineralization exhibits similarities to 'Western States-type' uranium-sandstone mineralization (Coombe, 1977).

Subsequent downwarping of the eastern trailing (?) continental margin was accompanied by shelf-type deposition of the overlying Wollaston Group. In the Morell Lake area the lowermost quartzitic unit of the Wollaston Group (the Souter Lake Formation) hosts several Pb and Zn sandstone-type occurrences (Coombe, 1983). The most important of these is the George Lake deposit (Fig. 10). Metal zoning of the occurrences is manifested by dominance of lead or zinc. The more westerly-lying occurrences (e.g. Segment, Marina) tend to be Pb-dominant, a feature possibly due to their closer proximity to the exposed Archean basement. The Zn-dominant George Lake deposit lies further east and, likely, more distal from the exposed sialic basement.

The overlying Pelite Unit (represented by the George Lake and Spence Lake Formations in the George Lake area) probably represents a widespread marine transgression. It includes carbonaceous-graphitic units, calcareous pelites, calc-silicates, minor quartzites and locally, at least, banded oxide-silicate facies iron formation. In the Sito-Fable Lakes area, quartzite members host sandstone-type(?) Zn-Pb mineralization (Fig. 10).

Overlying the Pelite Unit is a monotonous sequence of arkosic rocks (the Arkose Unit, that includes the Causier Creek Formation of the George Lake area). Variegated arkoses in the Pendleton Lake area, interpreted by the writer as metamorphosed red-beds (Coombe,1977, 1979), host sandstone-type Cu(-Pb) mineralization (i.e. Janice, Juno, Kaz and Rafuse occurrences) (Fig. 10).

The Lower Proterozoic sandstone-type occurrences of the Wollaston Domain share many common characteristics:

1. Host rocks are commonly clastic sediments, i.e. quartzites, feldspathic quartzites and arkoses. The 'cleaner', better-sorted orthoquartzites appear to be the most favourable for Zn/Pb mineralization. Arkose hosts to Cu(-Pb) mineralization in the Pendleton Lake area are varyingly calcareous. Generally, the coarser grained rocks are the more favourable hosts.

2. Mineralization is predominantly stratiform and, commonly, stratabound. Lateral persistence of mineralization is dependent upon the persistence of the host rock. At George Lake mineralization is persistent over several kilometers, whereas at Sito Lake the host quartzites are lensoid and, consequently, mineralization does not extend far along strike.

3. Mineralization is typically disseminated; rarely do sulphide minerals form more than 20 per cent by volume of the host. Sulphide minerals are distributed throughout the host rock and occupy interstices between silicate grains. Locally, mobilization may have developed more concentrated mineralization.

4. The mineralogy of the occurrences is very simple. Usually only two or three sulphide phases exist. Pyrite and/or pyrrhotite are generally subordinate to the other sulphides. There is often no correlation between iron sulphides and other sulphide species.

5. Within an individual occurrence, one metal is usually more predominant, e.g. George Lake (Zn>Pb), Marina (Pb>Zn), Kaz (Cu>Pb>Zn), Duddridge Lake (U>Cu). Predominant metal species may be explicable in terms of regional and local zoning that may, in turn, reflect the paleodepositional environment, e.g. nature of the source basement rocks, distance from basement, weathering and erosional processes of the source rocks, etc.

6. The occurrences lack any obvious direct genetic link to intrusive igneous activity. Where intrusive igneous rocks are present, e.g. pegmatite sheets in the Kaz Lake area, the intrusives are clearly younger than the mineralization and locally caused redistribution of the sulphides (e.g. Rath and Morton, 1969). Furthermore, extensive wall rock alteration is essentially absent.

7. The occurrences exhibit little evidence of structural control. Even where the host rocks are highly deformed, as at Sito Lake, dispersion of sulphide minerals into fold closures is equivocal.

8. Lead isotope studies on galenas from a variety of occurrences suggest a two-stage model, i.e. derivation from an Archean source and emplacement during Early Proterozoic

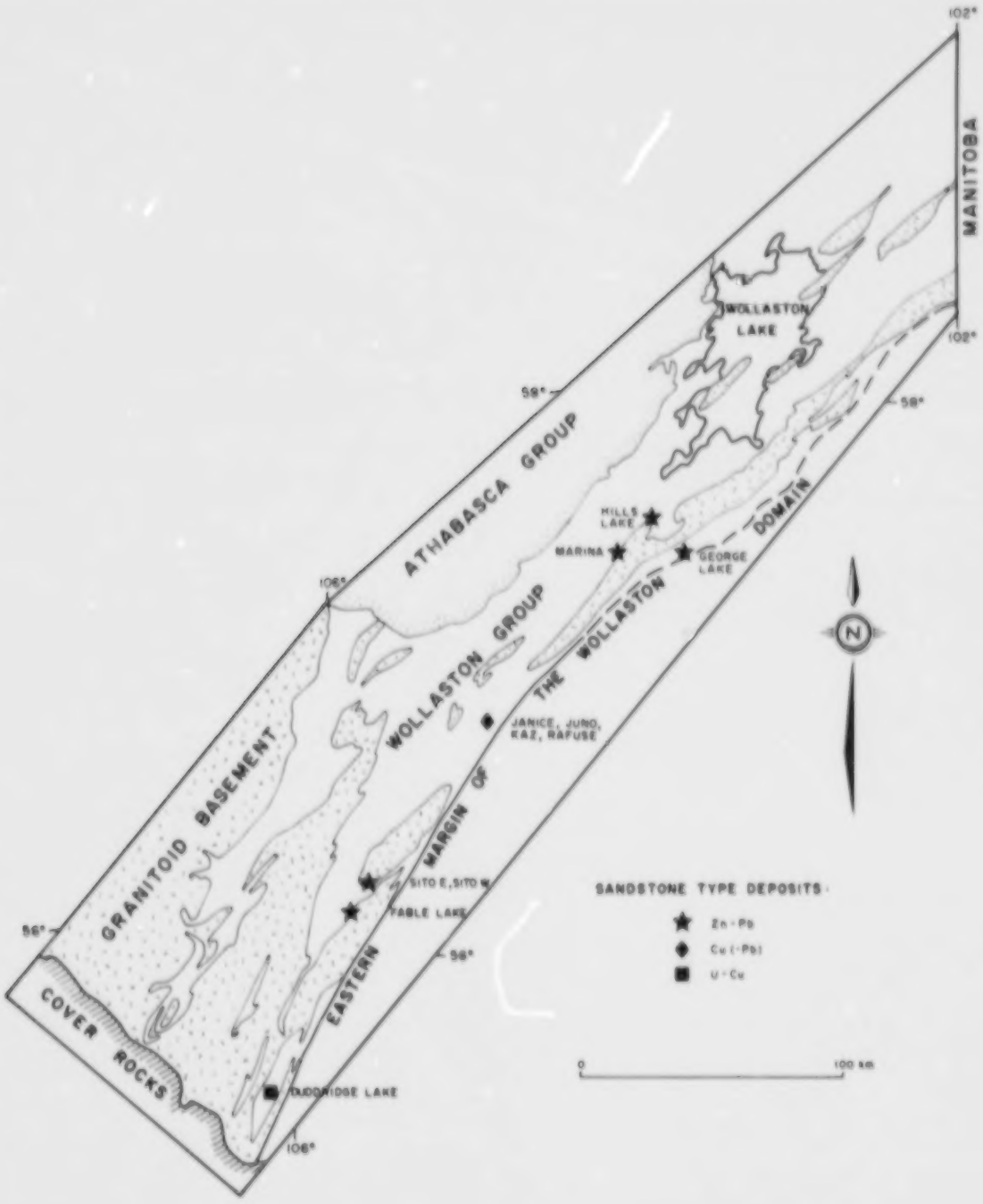


Figure 10. Distribution of sandstone-type deposits in the Wollaston Domain (geology after Macdonald and Broughton, 1980).

times (Cumming et al., 1970; Franklin, personal communication, 1979). Furthermore, based on lead isotope ratios of feldspar, Cumming et al. suggest that copper-bearing meta-arkosic rocks in the Janice Lake area became a closed system ±2040 Ma. This age may date the time of deposition of the host rocks.

An early-Proterozoic syn-sedimentary origin for these occurrences is favoured. The metals were likely introduced into the host rocks during, or immediately following, deposition, i.e whilst the rocks were still permeable.

Island Arcs and Related Deposits of the Reindeer Zone

Within the Reindeer Zone, spatial and temporal relationships between the different major component facies are generally well documented. However, detailed stratigraphic relationships (and, by inference, metallogenic relations) within any specific arc, or inter-arc, facies are largely obscured by structural and/or metamorphic effects and remain to be resolved.

There are several volcanic arcs in the Reindeer Zone. Present evidence suggests that the arcs are essentially coeval (e.g. Gordon, 1989; Parslow and Gaskarth, 1988) and formed at ca. 1900 Ma. The better documented arcs are those of the Flin Flon (here including, for simplicity, the Hanson Lake Block) and La Ronge Domains.

The volcanic arcs, and related rocks, of the Reindeer Zone host important volcanogenic Cu-Zn and Zn-Pb-Cu massive sulphide deposits, porphyry-style Cu(-Mo-Au) occurrences and intrusion-hosted Ni-Cu deposits.

Lead isotope studies on 'ore' galenas from widely dispersed volcanogenic massive sulphide deposits (principally from the La Ronge and Hanson Lake-Flin Flon volcanic arcs) suggest isotopic abundances are relatively homogeneous in composition. Model lead ages mostly fall between 1700 and 1900 Ma (Sangster, 1972, 1978; Sinha, 1970).

VMS Deposits in the Hanson Lake-Flin Flon Arc

The Hanson Lake-Flin Flon arc exhibits evidence for the presence of several volcanic centres. In the Flin Flon area, subaqueous basaltic flows and breccias predominate; rhyolite flows, breccias and tuffs and sedimentary rocks form a small proportion of the Amisk Group. The volcanics have tholeiitic and oceanic island arc characteristics (e.g.Bailes and Syme, 1989).

In the East Amisk Lake area, about 15 km southwest of Flin Flon, Parslow and Gaskarth (1988) argue that the predominant subaqueous basaltic flows of the Amisk Group rocks are unique: they are tholeiitic, oceanic and rift-related and may be of MORB, ophiolitic, ocean island or back-arc basin rift origin.

In contrast, the West Amisk Lake area, 30 km west of Flin Flon, comprises a thick, lower unit of subaqueous, tholeiitic basalt that is overlain by an upper unit of largely subaerial (?) calc-alkaline andesite, high-alumina basalt, dacite and rhyolite (Fox, 1976a). The upper unit is overlain, in turn, by volcanogenic sediments and volcaniclastics. Plutonics and hypabyssals of the Missi Island Vent Suite complex intrude the Amisk Group rocks. The overall setting of this complex resembles a volcanic caldera.

Further west, in the Hanson Lake area the volcanics have recently been interpreted as being coeval with the Amisk Group of the Flin Flon-Amisk Lake area (e.g. Sibbald, 1989). Here the volcanics comprise a thick sequence of easterly facing dacitic volcaniclastics (predominantly pyroclastics) that are overlain by a rhyolite lava dome. The rhyolitic volcanics are overlain by mixed mafic-felsic volcanics (that locally include flows and fragmentals) and intruded by small bodies of quartz-feldspar porphyry. Greywacke sediments cap the volcanic succession.

In Manitoba, Bailes and Syme (1989) report that the Amisk Group is partitioned into numerous internally consistent, fault-bounded blocks that cannot be correlated. Likely, a similar structural disruption pertains to that portion of the Amisk Group in Saskatchewan and, therefore, precludes regional correlation of stratigraphy and mineralizing events. Indeed, the Sturgeon-Weir Thrust may be one such 'bounding' fault. Until recently, the thrust had been considered as the boundary between the 'older' Archean Hanson Lake volcanics and the 'younger' Proterozoic Amisk Group volcanics.

Volcanogenic massive sulphide deposits occur within each of the areas described above. They exhibit features typical of VMS deposits elsewhere (Sangster, 1972; Lydon, 1989). The deposits are mostly proximal, i.e. they occur immediately over or immediately adjacent to their exhalative vents (Large, 1977). Both

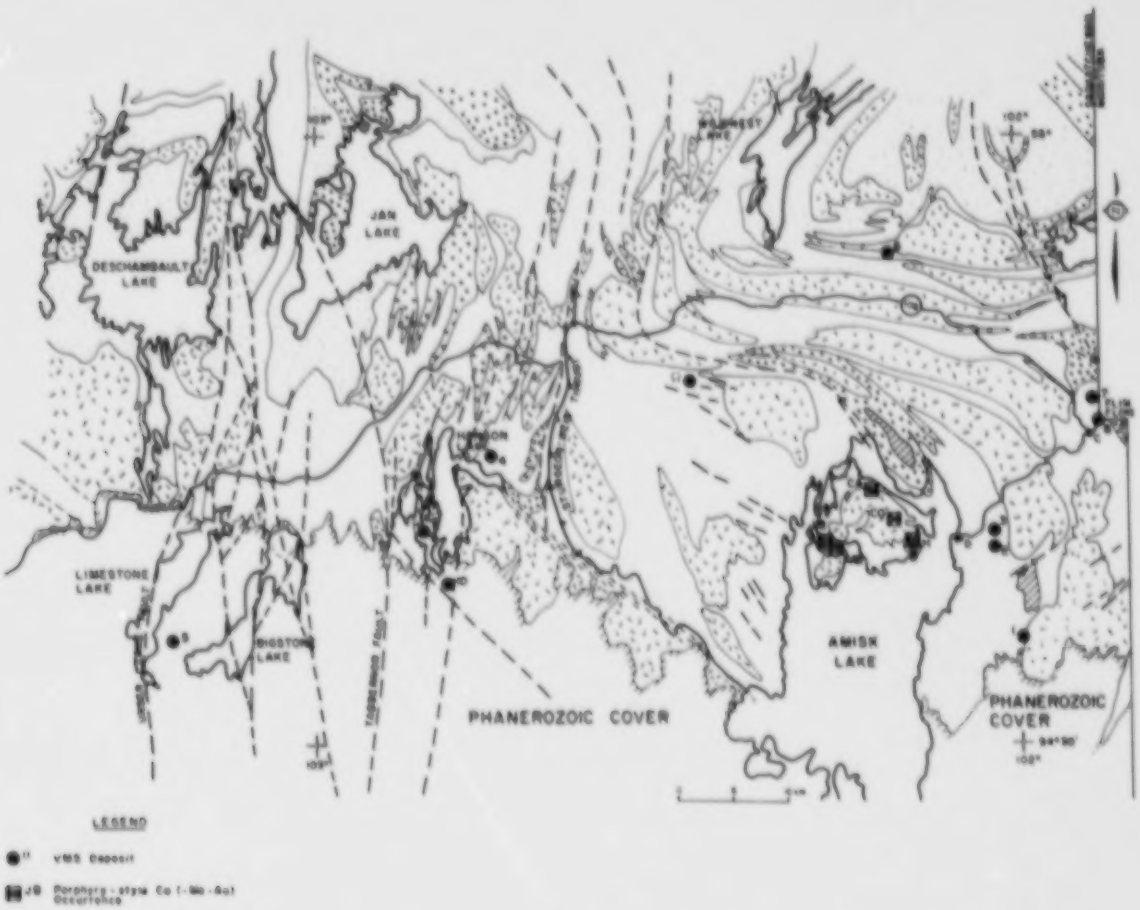


Figure 11. Distribution of volcanogenic massive sulphide and porphyry-style deposits in the Hanson Lake-Flin Flon arc (geology after Macdonald, 1981).
Legend: Random dashes, Undivided felsic intrusives; Crosses, Jan Lake Granite; Diagonal hatching, Ultramafic-mafic intrusives; Dotted, Biotitic gneisses; Small circled pattern, Psammitic sediments and other quartzofeldspathic rocks (includes the Missi Group); Blank, Mainly volcanic rocks and associated sediments and derived rocks (includes the Amisk Group)
VMS Deposits: Copper-dominant; 1. Coronation mine, 2. Birch Lake mine, 3. Flexar mine, 4. Ramsay, 5. Bigstone, 6. Otonadah. Zinc-dominant; 7. Callinan mine, 8. Flin Flon mine, 9. Hanson Lake mine, 10. McIlvenna Bay, 11. Fon Zones
Porphyry-Style Cu(-Mo-Au) Occurrences: CA. Can, CO. Cougal Lake, H. Hot, J.B. J. Brain, M.B. Missi Bay

Cu-Zn and Zn-Pb-Cu deposit types are known (c.f. Franklin et al., 1981).

In the Flin Flon area, the Flin Flon and Callinan Cu-Zn deposits both occur within the same thin rhyolite flow and flow breccia unit at the top of the thick South Main Basalt sequence.

In the East Amisk area, the Birch and Flexar Cu-Zn deposits lie within the same thin felsic pyroclastic unit that is intercalated within a thick sequence of pillowed basalts. The nearby Coronation and Echo Lake Cu-Zn deposits apparently lie at, or close to, the same horizon. The Birch-Flexar and Coronation-Echo horizons may be equivalent, but deformation precludes definite correlation. The deposits of the East Amisk area differ from those at Flin Flon in a) their geological setting, and b) their chemistry. In the East Amisk area felsic volcanics are essentially absent; however, ultramafic-mafic sills are conspicuous. As well, the East Amisk deposits possess much higher Cu:Zn ratios (±10:1) than the Flin Flon deposits. The copper-dominant nature of the mineralization and the association with a thick sequence of subaqueous basalts and subjacent ultramafic-mafic sills prompts comparison with

Cyprus-type Cu-Zn VMS deposits (c.f. Sawkins, 1976).

In the West Amisk area, the Fon Zn-Pb-Cu deposit and Abbott Lake Cu-Zn prospect are hosted within a relatively thick sequence of dacitic-andesitic volcaniclastics and intercalated volcanogenic sediments. Correlation between the deposits is not clear. The Fon deposit may lie at a different stratigraphic horizon than the Abbott Lake prospect or, alternatively, the deposits may lie along the same folded horizon. In either case, the deposits appear to lie within the upper part of the Amisk Group successsion.

Further to the west, the Hanson Lake volcanics host several important Cu-Zn and Zn-Pb-Cu deposits. At Hanson Lake the volcanics contain multiple, discretely mineralized, superposed horizons that exhibit a close spatial (and genetic ?) association with a rhyolitic dome (c.f. Kuroko-type deposits (Sawkins, 1976)).

The Wings and Bluebird Cu-Zn prospects lie within the same lower stratigraphic horizon on the west side of Hanson Lake. The Hanson Lake Zn-Pb-Cu deposit occurs stratigraphically higher in the same sequence of dacitic volcaniclastics. The McIlvenna Bay Zn-Cu-Pb deposit and Balsam Cu-Zn prospect appear to lie at, or about, the same stratigraphic horizon. The relation of this mineralized horizon with the Wings-Bluebird and Hanson Lake horizons is not clear. Sibbald (1989) reports that the McIlvenna Bay(-Balsam) horizon overlies the Hanson Lake horizon and occurs at the top of the felsic sequence, i.e. at the cessation of felsic volcanism. If the latter arguement is true, then there are at least three favourable horizons within the volcanics at Hanson Lake.

In brief summary, there appear to be at least three (and possibly four) major clusters of VMS deposits in the Hanson Lake-Flin Flon arc, i.e. Flin Flon area (overlapping into Manitoba, and including the Callinan, Flin Flon, Schist Lake, Mandy, Trout Lake, Cuprus, White Lake, Centennial, etc. deposits), East Amisk area (Coronation, Flexar, Birch deposits) and West Amisk-Hanson Lake area (Fon, Hanson Lake, McIlvenna Bay deposits).

VMS Deposits in the La Ronge Arc

The La Ronge arc (more specifically, the Central Metavolcanic Belt, Coombe et al., 1986) is geologically and geochemically distint from the Hanson Lake-Flin Flon arc. The La Ronge volcanics range from basalt through andesite to rhyolite in composition. Calc-alkaline types predominate. The volcanics comprise a higher percentage of andesites and contain significantly more volcaniclastic material than the Hanson Lake-Flin Flon arc (Watters and Pearce, 1987; Watters et al., 1987). Lithological and chemical changes along the length of the arc suggest a variation from a dominant oceanic island arc to a continental margin volcanic arc (Watters et al., 1987).

VMS deposits in the La Ronge arc are rare, perhaps due to the possible continental margin tectonic setting. However, the important Fox and Ruttan Cu-Zn VMS deposits are hosted within the northeasterly extension of the La Ronge arc in neighbouring Manitoba (e.g. Gilbert et al., 1982).

In Saskatchewan, the Besshi-type (?) (Sawkins, 1976) Churchill Minerals Cu-Zn prospect at Waddy Lake is hosted by a laterally persistent, sulphidic, volcaniclastic horizon within tholeiitic, pillowed basalts. Further to the northeast, a laterally-extensive exhalative, cherty horizon contains significant Cu-Zn mineralization in the May Lake area.

Somewhat more enigmatic deposits in the La Ronge Domain include the Anglo-Rouyn Cu-Ag-Au deposit, the Borys Lake Zn-Pb-Ag deposit and the McKenzie Zn-Pb-Cu deposit. All of these significant deposits exhibit some volcanogenic characteristics, but deformation and/or metamorphism have obscured diagnostic deposit-type classification. Interestingly, all three deposits occur within favourably mineralized horizons that can be traced several kilometers along strike from the deposits.

VMS Deposits in Other Arcs

Other arcs in the Reindeer Zone are less well understood. Some individual arcs may resemble the Hanson Lake-Flin Flon arc and represent true oceanic island arcs, whilst others may be closer to the La Ronge arc in nature, i.e. transitional to continental margin volcanic arcs. Indeed, some volcanic belts in the Glennie Domain (e.g. those within the Wapassini Allochthon (Lewry, 1984)) may have been transported tectonically into their present positions by nappe development associated with telescoping of the La Ronge fore-arc during final oceanic closure in the Hudsonian.

Nevertheless, these arcs contain important VMS

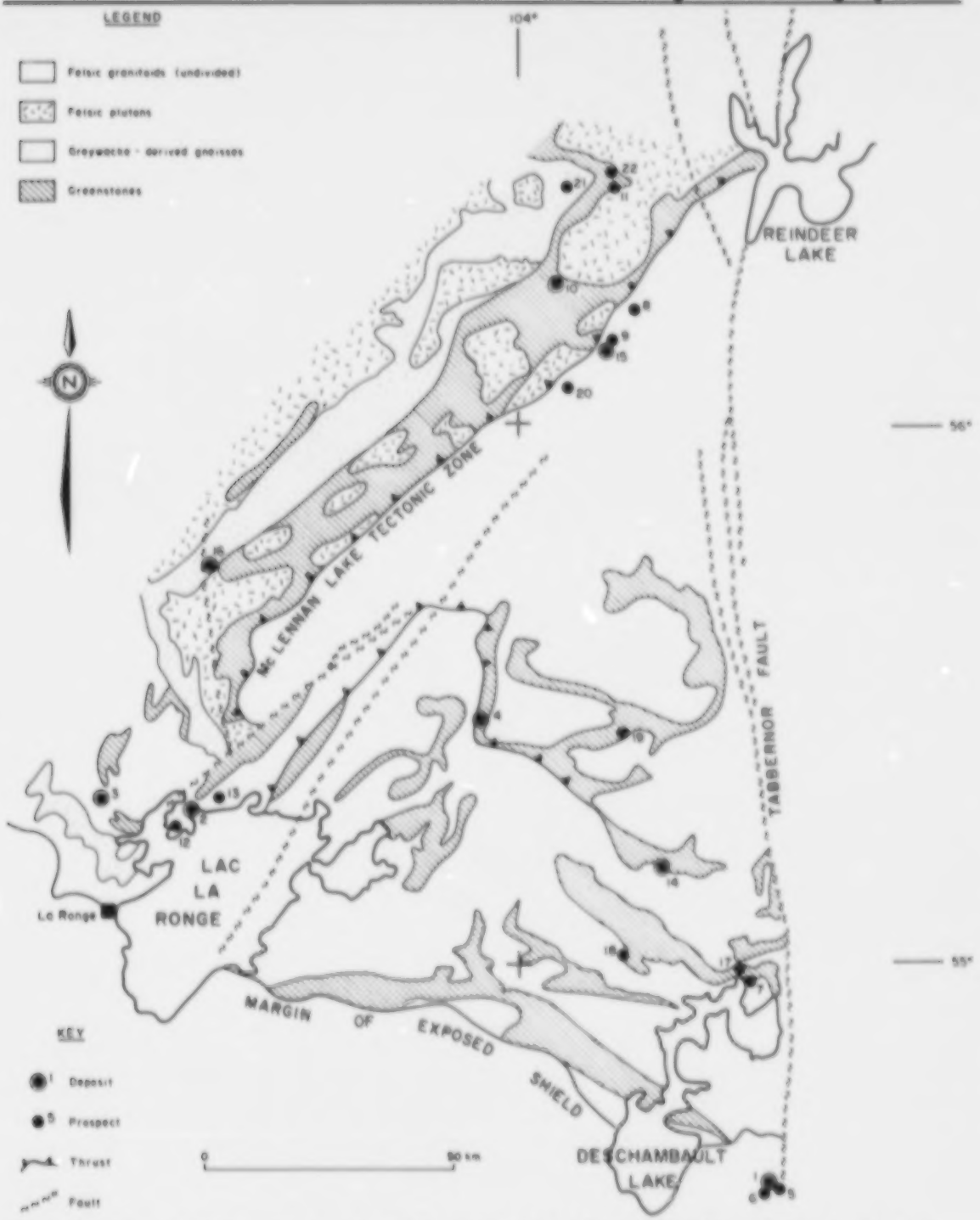


Figure 12. Distribution of volcanogenic massive sulphide deposits in the La Ronge arc and Glennie Domain (geology after Macdonald, 1987).
Copper-dominant - *Deposits:* 1. Bigstone, 2. Anglo-Rouyn mine, 3. Elizabeth Lake, 4. Pitching Lake; *Prospects:* 5. Big, 6. Way 9 (Bigstone Lake), 7. Rat 64 (Deschambault Lake), 8. Hook Lake (Brabant Lake NE), 9. Betty (Redhill Lake), 10. Churchill Minerals (Rio, Nistoassini Lake), 11. May Lake NE, 12. Williams Peninsula, 13. Dam-Crescent Lakes
Zinc-dominant - *Deposits:* 14. HBED, 15. McKenzie, 16. Will; *Prospects:* 17. Rat 16 (Deschambault Lake), 18. Brownell Lake, 19. Sun (Norum Lake), 20. Wep (Main Lake), 21. Elephant Lake, 22. May Lake N

Cu-Zn deposits. The Bigstone Cu-Zn deposit is hosted within volcanics that may represent the westerly extension of the Hanson Lake-Flin Flon arc. The Brownell Cu-Zn prospect and the HBED Cu-Zn deposit are hosted within the relatively narrow Brownell Lake and Gee Lake greenstone belts respectively.

VMS Deposits in the Inter-Arc Kisseynew Basin

Recent work along the southern flank of the Kisseynew Domain in Saskatchewan and Manitoba has led to a clearer understanding of the relationships between the Amisk Group volcanics of the Flin Flon Domain and the "Kisseynew Gneisses" to the north. Workers in the area now believe that Kisseynew-type amphibolitic rocks and wackes represent high-grade equivalents of the Amisk Group rocks. Moreover, some Kisseynew-type psammitic rocks (including subordinate conglomerates) are now interpreted to represent high-grade equivalents of Amisk felsic volcanic material, whilst others are regarded as high-grade equivalents of Missi Group rocks (Ashton, 1989; Ashton and Froese, 1988; Ashton et al., 1987).

Cu-Zn deposits are known throughout the Kisseynew Domain (Fig. 13). The best known deposits occur within the Sherridon area of Manitoba. Here quartz-rich gneisses, now interpreted as high-grade Amisk Group felsic volcanics (Ashton and Froese, 1988), host the former-producing Sherridon Cu-Zn ore body (7.7 million tons @ 2.4% Cu and 2.8% Zn) and the Bob Lake (2.3 million tons @ 1.3% Cu and 1.2% Zn) and Jungle Lake (3.3 million tons @ 1.4% Cu and 1.1% Zn) Cu-Zn deposits. [Reserves are from Gale et al., 1980]

In Saskatchewan several Cu-Zn deposits are known in the Kisseynew Domain, especially in the vicinity of Wildnest Lake, e.g. Otonadah and DRS (Schotts Lake) deposits. Here, as well, Ashton (1989) interprets the gneissic sequence as high-grade Amisk rocks.

The Cu-Zn deposits closely resemble the typical VMS deposits of the Flin Flon Domain, i.e. they are proximal massive sulphide bodies. Hydrothermal alteration is typically present, either within footwall rocks beneath the deposits or along strike or both. Garnet-cummingtonite alteration assemblages have been reported at several locations (Ashton, 1989; Pearson, 1986). As well, the alteration assemblages may locally contain conspicuous anthophyllite and sillimanite. The massive sulphides generally comprise predominant pyrrhotite with lesser pyrite and minor chalcopyrite and sphalerite.

In the Kisseynew Domain the deposits tend to be thinner and more stratiform and laterally extensive than in the Flin Flon Domain, e.g. the Sherridon deposit averages 4.7 m in thickness but the component east and west ore bodies extend for a combined length of 3.7 km. This geometry may be due to tectonic attenuation.

The degree of deformation in the Kisseynew Domain precludes definitive correlation of favourably mineralized horizons over any significant distance. However, interestingly, in the Wildnest Lake area the Otonadah, DRS, Teejay (Vass Lake) and Nest occurrences do conceivably lie within, or close to, the same stratigraphic horizon.

Porphyry-Style Cu(-Mo-Au) Mineralization

In the present context, porphyry-style mineralization refers to large, low-grade, epigenetic, intrusion-related mineralization that can be mined using bulk mining techniques (definition after McMillan and Panteleyev, 1989).

The general geological characteristics of porphyry-style mineralization are as follows (after McMillan and Panteleyev, 1989):

1. Mineralization is spatially and genetically related to igneous intrusions.

2. The intrusions are generally felsic, epizonal and invariably porphyritic.

3. Multiple intrusive events, dyke swarms and intrusive breccias are characteristic.

4. Intrusions and surrounding rocks are intensely fractured.

5. Mineralization and alteration form large zones that may exhibit lateral zoning.

Mineralized sub-volcanic, felsic porphyritic intrusions have been described in the Flin Flon Domain. They are known only within the volcanic arc, where they are commonly associated with felsic volcanic accumulations.

In neighbouring Manitoba, Baldwin (1980) reports Cu-Mo mineralization associated with potassium silicate and propylitic alteration immediately east of Flin Flon in the Cliff Lake

Figure 13. Distribution of volcanogenic massive sulphide deposits in the inter-arc Kisseynew Basin (geology after Macdonald and Broughton, 1980 and Corkery, 1987).
Deposits: 1. Sheridon mine, 2. Bob Lake, 3. Jungle Lake, 4. ORS (Schotts Lake), 5. Nest (Wildnest Mines), 6. Teejay (Cot, Vass Lake), 7. Otoniadah

Stock and Whitefish Lake Porphyry intrusives. As well, Stewart (1977) describes porphyry-style gold mineralization in the Cliff Lake Stock.

In Saskatchewan, porphyry-style mineralization has been described near Flin Flon and at Amisk Lake (Fig. 11). Immediately south of Flin Flon, Wallster (1979) and Galley and Franklin (1987) describe Au-W-Cu-Mo mineralization associated with the Boot Lake-Phantom Lake Intrusive Complex. The latter comprises a large, late, high-level, zoned granodiorite-porphyritic granite intrusion that invades Amisk Group volcanics. The complex is formed by four major intrusive phases, accompanied by at least four periods of dyke emplacement.

Several occurrences, containing varying concentrations of gold, chalcopyrite, scheelite, molybdenite and silver, are known in the Phantom Lake region (Coombe, 1984, Galley and Franklin, 1987), e.g. Dion Lake N, Dion Lake S, IMC-A, IMC-B, Phantom, etc.

The majority of the occurrences contain pyrite and chalcopyrite, with varying amounts of accessory scheelite and molybdenite. Galley and Franklin (1987) report two types of alteration and mineralization in the area that may be genetically related to a porphyry system. Hematite-quartz-carbonate-epidote (and associated Cu-W-Mo mineralization) and sericite-quartz-carbonate (and associated W-Cu mineralization) alterations are pervasive and restricted to the intrusion.

At Amisk Lake, Kirkham (1974) and Chute and Ayres (1977) discuss porphyry-style mineralization associated with the late (?) Missi Island Vent Complex. On Missi Island Amisk Group volcanics volcanics are intruded by two subvolcanic suites: an older, porphyritic dyke suite and younger, discrete stocks of altered trondhjemite.

Several discrete fracture-related Cu(-Mo-Au) occurrences are known in association with the complex on Missi Island, e.g. Can, Cougal, J.Brain, Missi Bay. According to Chute and Ayres (1977), mineralization is most commonly associated with the porphyritic dyke suite, generally at, or near, contacts with mafic volcanic country rocks.

The occurrences comprise highly fractured host rocks (that include porphyritic intrusives as well as volcanic country rocks) that are mineralized with disseminations and fracture-fillings of pyrite and chalcopyrite and rare molybdenite. Pyrrhotite and sphalerite have been reported in places. Pervasive hydrothermal alteration affects both dykes and country rocks and is characterized by textural destruction, silicification and sericitization. Fractures are commonly healed with quartz and may contain further alteration products that include carbonate, chlorite, epidote, hematite and pyrite.

Intrusion-Hosted Ni-Cu Deposits in the Reindeer Zone

The greatest concentration of ultramafic-mafic intrusions and associated Ni-Cu mineralization in Saskatchewan occurs in the La Ronge Domain. Whilst there has been no Ni-Cu production in the past from Saskatchewan, the tholeiitic Lynn Lake intrusives, within the northeastern continuation of the La Ronge Domain in Manitoba, produced continuously from 1952 to 1976. During this time more than 20 million tons @ 1.0% Ni and 0.5% Cu were produced from the 'El', 'A' and Farley mines (Pinsent, 1980).

In general, the mineralized intrusions in the La Ronge Domain are plug-like and possess an internal layering. They invade diverse rocks. The intrusions are distributed throughout the domain, but are, perhaps, more concentrated toward the westerly lying parts of the domain. The metallogenic significance of this distribution is not clear, but it may reflect greater accessibility to oceanic crust and/or other mantle-derived melt.

Intrusions of tholeiitic (?) parentage in the southern portion of the La Ronge Domain (e.g. Clam, Nemeiben, Gochager, and Reef) contain a relatively high proportion of ultramafic cumulates. They exhibit a narrower differentiation range than those in Manitoba and are, apparently, characteristically depleted in PGE content (Hulbert, 1989).

Nd-Sm isotopic work has indicated crystallization ages for the intrusions between 1.88 Ma and 1.79 Ma (Hulbert, 1989), i.e. they are essentially contemporaneous with the surrounding arc-related rocks.

Despite subsequent deformation and metamorphism, the mineralized intrusives exhibit, at least locally, classical magmatic sulphide-silicate textures (e.g. Macfarlane and Mossman, 1982).

In the Rottenstone Domain, the Hall Ni-Cu-PGE deposit is unique in terms of the high level of contained precious metals. The small mineralized harzburgite-orthopyroxenite body contains about 50 per cent disseminated and net-textured sulphides. Hulbert (1989) provides a possible explanation for the high PGE content. He reports that the deposit has high Se and Te concentrations; assimilated crustal rocks enriched in Se and Te may have enhanced the PGE scavenging capability of the immiscible sulphides in the original melt.

Elsewhere in the Reindeer Zone, intrusion-hosted Ni-Cu mineralization is rare. The recent discovery of the Namew Lake deposit, about 75 km south of Flin Flon and immediately east of the Saskatchewan-Manitoba border, has

Figure 14. Distribution of intrusion-hosted nickel-copper deposits in the Reindeer Zone (geology after Macdonald and Broughton, 1980 and Corkery, 1987).
Saskatchewan Deposits: 1. Howard Lake, 2. Mac (National Nickel, Nemeiben Lake), 3. Gochager Lake, 4. Rottenstone mine (Hall deposit)
Saskatchewan Prospects: 5. Table Lake, 6. Mal Lake, 7. Reef Lake
Manitoba Deposits: 8. El mine, 9. A, Farley mines

revealed new potential for this portion of the Reindeer Zone.

Metamorphogenic Cu-Zn Deposits

Metamorphogenic deposits include those occurrences in Saskatchewan that are interpreted by the writer as having been formed (or significantly upgraded) during metamorphism associated with the Hudsonian Orogeny. They do not include those deposits that may have been modified by metamorphism but, nevertheless, retain sufficient primary features to recognize an alternative metallogenesis.

Several important examples are known in Saskatchewan. They exhibit the following common characteristics:

1. They occur within high-grade gneiss terrains (upper amphibolite-granulite facies) and are commonly hosted within biotitic and/or amphibolitic rocks.

2. The occurrences appear to be preferentially

located at, or close to, regions of steep metamorphic isograds.

3. Significant volumes of typically greenish-coloured, coarse, anatectic plagioclase-quartz-mica pegmatite are present within the mineralized zones. The conformable bodies of pegmatite form major hosts for the sulphide mineralization.

4. Disseminated to massive sulphides are predominantly formed by pyrrhotite, pyrite, chalcopyrite and sphalerite.

The best known examples in Saskatchewan are all Cu-Zn occurrences. They include the Ramsay deposit and Wakisew prospect in the Hanson Lake area, the McKenzie deposit and the Wep prospect in the Brabant Lake area and the Brown prospect at Reindeer Lake.

Despite the foregoing, it should be noted that some of these deposits, if not all, bear marked similarities to the better documented Kisseynew VMS deposits in general and to the Sherridon deposit of Manitoba in particular.

Aphebian-Hudsonian (?) Red Bed-Associated Cu Mineralization, North Shore, Lake Athabasca

Several enigmatic Cu occurrences are hosted within Archean (?) 'Tazin Group' rocks in the Camsell Portage area, on the north side of Lake Athabasca. They lie within a variety of rock types; migmatitic felsic gneisses and mylonites predominate. The mineralization comprises mainly disseminated pyrite and chalcopyrite; bornite and chalcocite have been reported in places.

A majority of the occurrences lie close to the unconformity with the overlying Thluicho Lake Group (Scott, 1978). The latter comprises a mildly metamorphosed succession formed by a basal conglomerate that is overlain, in turn, by arkose and argillite. The age of the Thluicho Lake Group is not known. An early Aphebian age is a possibility. However, most workers believe the rocks are early-Hudsonian (e.g. Ramaekers, 1990).

The genesis of the copper mineralization in the area is purely speculative. However, deposition from Cu-bearing hydrothermal fluids at, or close to, the base of the Thluicho Lake Group during their early diagenetic history remains a possibility

Summary

In summary, a distinct metallogenic record, spanning Archean to Helikian times, is preserved in the Precambrian of northern

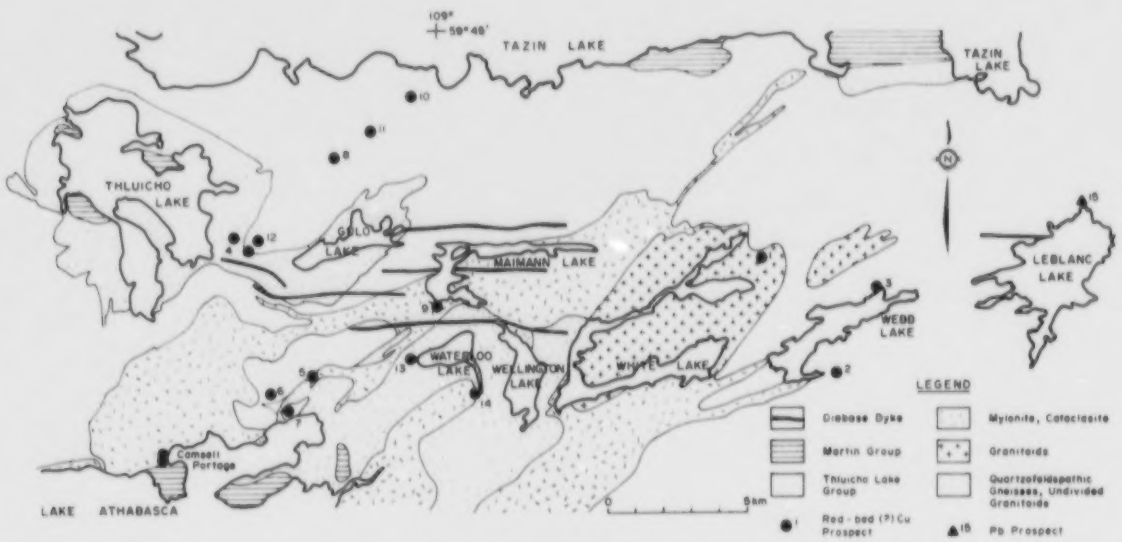


Figure 15. Distribution of red-bed (?) Cu, north shore, Lake Athabasca (geology after Macdonald, 1984).
Red-bed (?) copper prospects: 1. Dianne Lake, 2. Lake (Webb Lake S), 3. Pete (Webb Lake N), 4. Bob Lake, 5. Ellis Bay NE (Showings 1 to 5), 6. Ellis Bay NW (Showings 7 to 9), 7. Ellis Bay S (25 Zone), 8. Hearne Lake E, 9. Maimann Lake, 10. Pring Lake NE, 11. Pring Lake SW, 12. Thluicho Lake E, 13. Waterloo Lake W, 14. Waterloo Lake S
Lead prospect: 15. LeBlanc Lake

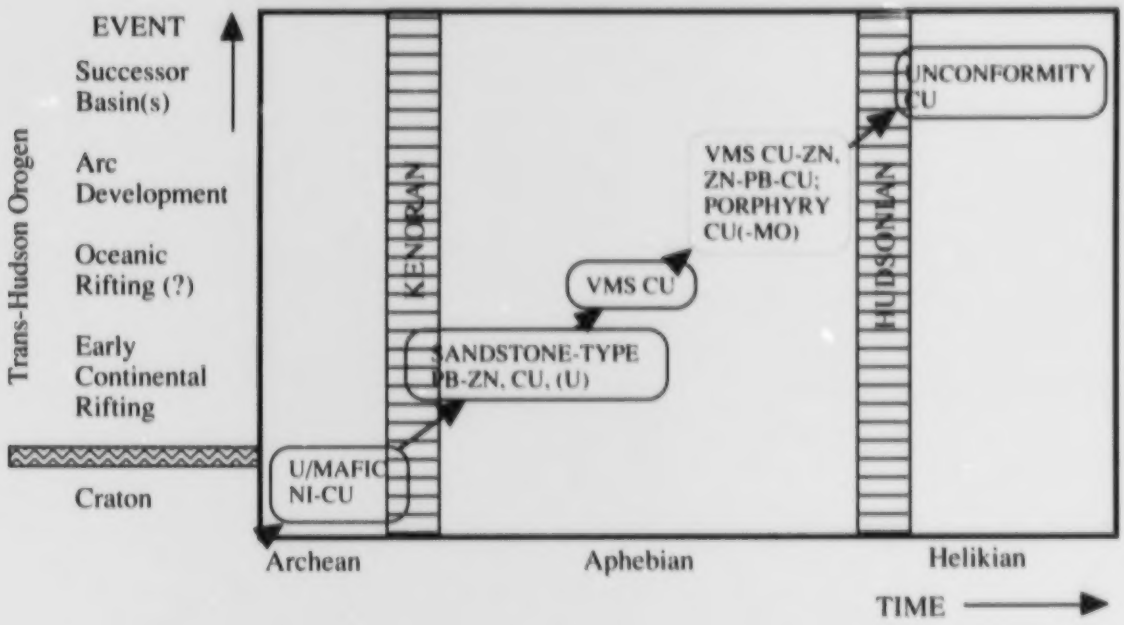


Figure 16. A summary of the metallogeny (base metals only) of the Precambrian of northern Saskatchewan.

Saskatchewan. Clearly, base metal deposit types reflect the evolution of the crust that incorporates break up of an Archean craton, development of oceanic crust, oceanic closure and island arc development and, finally, post-orogenic volcano-sedimentary successor basins (Fig. 16).

BASE METAL POTENTIAL

Known Reserves

There are at least 21 significant base metal deposits (i.e. with published reserves) known to the writer in Saskatchewan (Tables 9, 10 and 11). Several other deposits have been extensively evaluated and, likely, contain measurable reserves, e.g. Echo Lake and Abbott Lake Cu-Zn occurrences. However, these remain confidential at the time of this report. At the present time, all of these deposits are uneconomic, except the Callinan Cu-Zn deposit at Flin Flon.

Mineral Potential: A Regional Overview

There is excellent potential for the discovery of further significant base metal mineralization in the province of Saskatchewan. Realization of this potential will rely, to a large degree, on the continued development of an infrastructural framework in the province, namely roads, power and established mill and smelter facilities.

Five base metal target types appear to offer the best potential and they are arbitrarily priorized as follows:

1. Volcanogenic Cu-Zn(-Pb) deposits
2. Magmatogenic Ni-Cu deposits
3. Sandstone-type Pb-Zn(-Cu) deposits
4. Porphyry-style Cu(-Mo-Au) deposits
5. Metamorphogenic Zn-Cu deposits

Volcanogenic Cu-Zn(-Pb) Deposits

Recent successes in the Limestone Lake-Hanson Lake-Flin Flon area attest to the enormous potential for discovery of further volcanogenic massive sulphide deposits within this part of the Reindeer Zone. Whilst, interestingly, most of the recent discoveries

Table 9. Known copper reserves

Deposit	Tons	Cu	Zn	Au	Ag	Remarks
Bigstone	1,600,000	2.9				Probable ?
	340,000		11.2			Probable ?
Elizabeth Lake	601,000	1.5				Probable ?
Mokoman	6,000,000	0.6				
Otonadah	120,000	2.8	1.2	0.16	0.23	
Pitching	100,000	2.6				
Ramsay (Quandt)	814,648	2.2	1.8	Tr	0.23	

Table 10. Known zinc reserves

Deposit	Tons	Cu	Zn	Pb	Au	Ag	Remarks
Callinan	868,828	1.3	3.7		0.05	0.49	Saskatchewan Part
DRS (Schotts)	2,186,056	0.6	1.4				
Fon	5,126,000		4.6	N/A	N/A	N/A	
George	5,000,000		2.7	0.4			1% Zn Cut-Off
HBED	650,000	0.5	3.0				
McIlvenna	900,000	2.2	0.8	Tr	0.02	0.45	Lens 1, Possible
	10,800,000	1.0	5.8	0.4	0.02	0.73	Lens 2, Probable
McKenzie	4,073,392	0.6	4.8	0.3	0.01	0.54	2% Zn Cut-Off
Will (Borys)	1,336,500		1.9	*			*Combined Zn+Pb

Table 11. Known nickel reserves

Deposit	Tons	Ni	Cu	Co	Remarks
Axis	3,750,000	0.6	0.6	0.15	
Currie Lake	52,400	0.8			
Dinty Lake	1,500,000	0.6			
Gochager	4,262,400	0.3	0.1		Open Pit
	876,200	0.4	0.1		Below O/P
Howard Lake	60,000	1.0	0.4	0.04	
Mac (Nemeiben Lake)	2,067,250	0.7	0.4		Probable
	1,214,800	0.7	0.4		Possible
Rea Lake	26,400,000	0.1	0.1		Possible

have been made under Paleozoic cover rocks that lie south of the Hanson Lake Block and the Flin Flon Domain, there is little doubt that the exposed portions of these lithotectonic elements offer similar potential.

Indeed, the Aphebian volcanics of the Hanson Lake-Flin Flon-Snow Lake area contain an abundance of productive VMS deposits (Fig. 17). This greenstone belt contains a total of six currently-producing Cu-Zn(-Pb) mines and 19 formerly-producing and inactive Cu-Zn(-Pb) mines.

Elsewhere in the Reindeer Zone, the northeastern extension of the La Ronge Domain in neighbouring Manitoba contains important volcanogenic Cu-Zn deposits. In the vicinity of Lynn Lake, the Aphebian Wasekwan volcanics (equivalent to the Central Metavolcanic Be.. of the La Ronge Domain) host the formerly-producing Fox and currently-producing Ruttan Cu-Zn mines.

Focussed search parameters are becoming increasingly more important in successful exploration. In the past, many greenstone belts have been covered with conventional HLEM surveys and follow-up anomaly drilling. However, it is now clear that significant ore reserves may be contained within deposits with a relatively short strike length, i.e. less than 150 m, and that exhibit a steeply plunging geometry, e.g. Coronation, Flexar. Such ore bodies can escape detection by widely spaced (i.e. 100 to 150 m) geophysical survey lines. Moreover, several known ore bodies do not form ore at shallow depths (i.e. above a depth of 60 to 120 m), e.g. Birch, Callinan, Flexar deposits. Such ore bodies may, once again, escape detection with conventional (±100 m) HLEM coil separations.

The best potential clearly lies within the known "favourable" horizons, i.e. the strike and/or depth extensions of those stratigraphic-metallogenic entities that are known to contain ore deposits and/or prospects. Several such favourable Cu-Zn(-Pb) horizons are evident in the Reindeer Zone of northern Saskatchewan (see Table 12).

Elsewhere in the Reindeer Zone, the presence of significant deposits such as the Brownell and HBED zones suggests that other greenstone belts are worthy of more attention. As well, the recent recognition that the higher grade "Kisseynew-type" gneisses represent, in part at least, highly metamorphosed Amisk Group volcanics provides a working hypothesis for

Table 12. "Favourable" Volcanogenic Horizons

Domain	Horizon
Flin Flon	Callinan-Flin Flon Flexar-Birch-(Echo-Coronation)
Hanson Lake Block	Wings-Bertrum Bay (Hanson Lake Mine)-McIlvenna Bay-Balsam
La Ronge	May Lake Exhalite Wep-McKenzie-Betty-Linda (?) Anglo-Rouyn-Elizabeth Lake (?)

further massive sulphide exploration in the Kisseynew terrane.

Magmatogenic Ni-Cu Deposits

Important Ni-Cu deposits are known in both Archean and Aphebian terranes in Saskatchewan. Whilst there has only been one productive deposit discovered to date in Saskatchewan, i.e. the Rottenstone mine, contiguous and equivalent rocks in neighbouring Manitoba host several important deposits.

The former producing 'A', Farley and 'El' Ni-Cu mines of the Lynn Lake area, Manitoba occur within differentiated gabbroic intrusives within the Aphebian Wasekwan Group. The latter are equivalent to the La Ronge Group volcanics of the La Ronge Domain. Likewise, the recently-discovered Namew Lake Ni-Cu deposit, lying immediately south of the exposed Precambrian Shield in Manitoba, is hosted within mafic rocks intrusive into rocks of the Aphebian Flin Flon Domain.

In the author's view, too little attention has been paid in Saskatchewan in the past to geometric vagaries of potential Ni-Cu ore bodies within favourable host intrusives. For example, with respect to the Lynn Lake mines, the component ore bodies themselves were characteristically pipe-like, i.e. they exhibited a relatively small, sub-circular cross-sectional area (±100 m) but possessed considerable depth extent (±700 m) (Pinsent, 1980). Typically, in Saskatchewan Ni-Cu mineralization has been assumed to form planar or tabular zones; rarely have other potential ore body geometries been tested.

The most favourable areas for exploration for Ni-Cu mineralization in Saskatchewan appear to be the areas north of Lake Athabasca (e.g. the Tantato Domain) and the Reindeer Zone

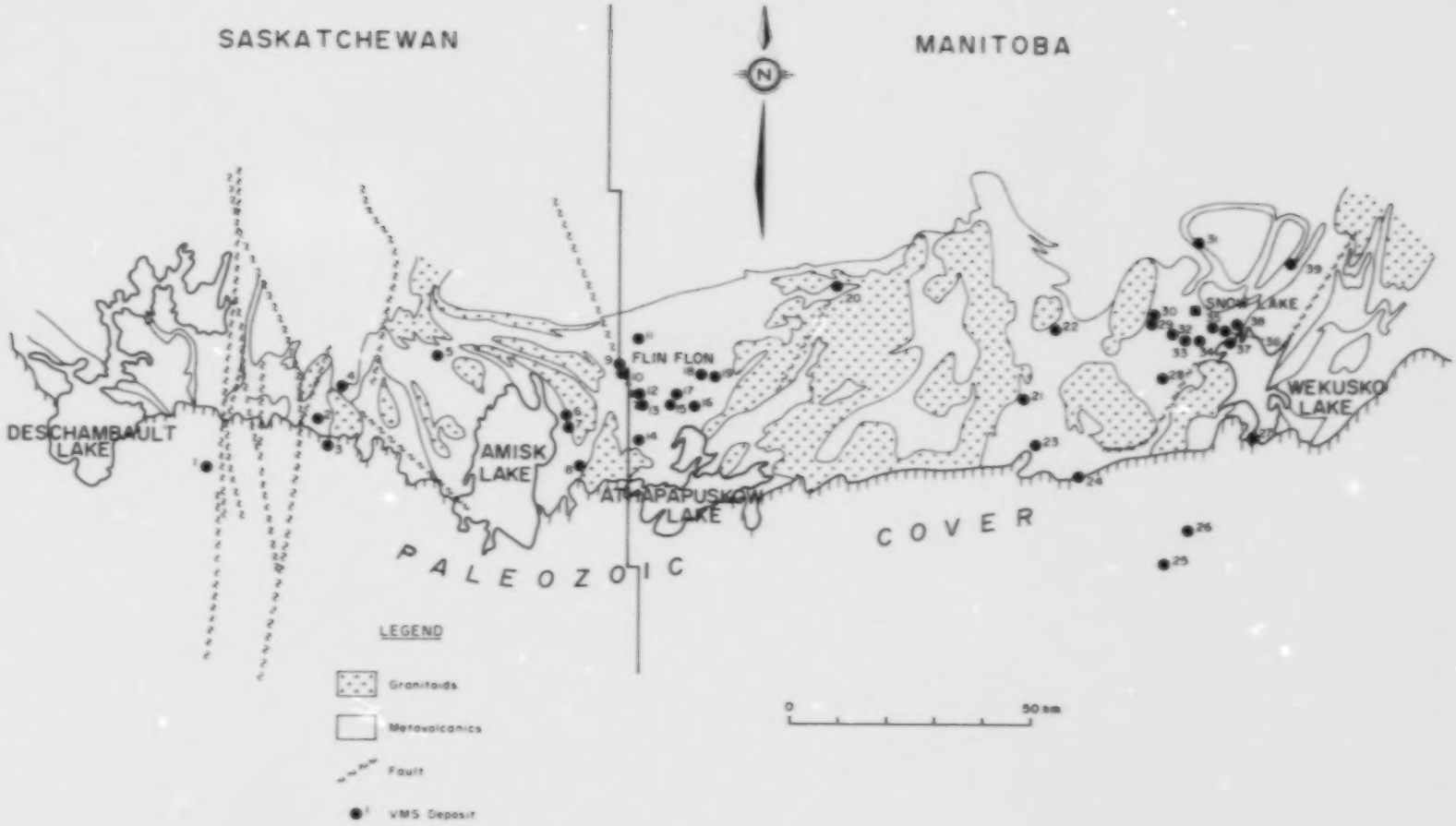


Figure 17. Volcanogenic massive sulphide deposits in the Limestone Lake-Hanson Lake-Flin Flon-Snow Lake area (geology after Macdonald and Broughton, 1980 and Corkery, 1987).
Deposits: 1. Bigstone, 2. Hanson Lake mine, 3. McIlvenna Bay, 4. Ramsay, 5. Fon, 6. Flexar mine, 7. Birch Lake mine, 8. Coronation mine, 9. Callinan mine, 10. Flin Flon mine, 11. Trout Lake mine, 12. Mandy mine, 13. Schist Lake mine, 14. Westarm mine, 15. White Lake mine, 16. Centennial mine, 17. Cuprus mine, 18. Pine Bay, 19. North Star mine, 20. Vamp Lake, 21. Rail, 22. Dickstone mine, 23. Reed Lake, 24. Spruce Point mine, 25. Sylvia, 26. Farewell, 27. Copper-Man, 28. Pot Lake, 29. Bomber, 30. North Cook Lake, 31. Wim, 32. Chisel Lake mine, 33. Lost Lake mine, 34. Ghost Lake mine, 35. Anderson Lake mine, 36. Stall Lake mine, 37. Linda, 38. Rod mine, 39. Osborne Lake mine

(particularly the Rottenstone, La Ronge and Flin Flon Domains).

Sandstone-Type Pb-Zn(-Cu) Deposits

Sporadic exploration within the miogeoclinal metasediments of the Wollaston Domain over the years has met with varied success. To date, no economic deposits have been found. However, several significant prospects have been discovered in the Morell Lake area (i.e. George Lake, Hills Lake, Marina, Johnson Lake), Sito-Fable Lakes (i.e. Sito E, Sito W and Fable Lake) and Pendleton Lake (i.e. Janice, Juno, Kaz and Rafuse) areas.

Most, if not all, of these deposits have been interpreted as sandstone-type. Metamorphic grade in the Sito-Fable Lakes area has partially obscured primary features and here the Zn-Pb mineralization has been considered by some workers (e.g. Buhlman, personal communication, 1980) as Broken Hill-type, i.e. exhalative in origin.

As with better documented sandstone-type deposits elsewhere in the world, the geometry of the mineralized zones commonly reflects the original depositional environment of the host sandstone body. For example, higher grade mineralization typically occurs within the cleaner and better sorted quartz arenite host. The latter, in turn, often forms distributary channels or similar 'shoestring' sands within a deltaic/epicontinental setting.

Therefore, during evaluation of sandstone-type mineralization it is imperative to decipher the various facies present in order to reconstruct the original deposystem. Whilst the overall depositional complex may form a very large exploration target, host channel sands themselves may form a relatively small and irregular target. For example, the George Lake 'favourable' horizon extends more than 12 km along strike, but discrete lenses of higher grade mineralization are only 500-800 m in length.

The best potential for discovery of further sandstone-type mineralization clearly lies within the known 'favourable' horizons. Several such favourable Pb-Zn(-Cu) horizons are evident in the Wollaston Domain of northern Saskatchewan (see Table 13).

Elsewhere in the Wollaston Domain, several intriguing finds remain unexplained and provide further exploration potential. For example, the Pb-Zn-Ag 'Watharnan Boulder' that was responsible for base metal exploration activity in the Wollaston Domain, is still enigmatic. Many workers believe the boulder was derived from the Marina showing at Johnson Lake, but this theory remains unproven. Similarly, no source has been found for the Cu-Pb(-Zn) boulders at the Kaz and Rafuse occurrences. Here the writer has speculated in the past that the boulders form part of a larger, glacially-dispersed fan with a source within a mineralogically zoned red-bed sequence further up-ice from the showings.

Table 13. 'Favourable' Sandstone-Type Horizons

Domain	Horizon
Wollaston	George-Souter Lakes Marina-Johnson South Fable-Sito E-Sito W

Porphyry-Style Cu(-Mo-Au) Deposits

Porphyry-style occurrences are known throughout the Reindeer Zone, but are especially conspicuous within the greenstone belts of the La Ronge and Flin Flon Domains. To date, none have proven to be economic.

The occurrences include both gold-dominant and copper-dominant varieties. Molybdenum and minor lead and zinc are typically present. The mineralization is spatially associated with felsic porphyritic intrusives and may be hosted within the intrusive (e.g. gold mineralization in the Phantom Lake area, Flin Flon Domain) or flanking the intrusive (e.g. Komis gold deposit, Waddy Lake area, La Ronge Domain).

The most prospective area in northern Saskatchewan for the search for porphyry-style mineralization appears to be the Missi Island area, Amisk Lake. Here, several known Cu (-Mo-Au) occurrences (e.g. Can, Cougal, J. Brain, Missi Bay) are associated with a large felsic, porphyritic intrusive-extrusive complex. Previous exploration work has been largely directed towards evaluation of discrete vein-type showings and not, apparently, towards the evaluation of a large tonnage, low grade porphyry style of mineralization.

Metamorphogenic Zn-Cu Deposits

Metamorphogenic deposits, in the present context, include those occurrences that have been interpreted by the writer as having been formed (or significantly upgraded) by

metamorphism. They do not include those deposits that may have been modified by metamorphism but, nevertheless, retain sufficient primary features to facilitate an alternative classification. Several important examples are known in Saskatchewan, e.g. McKenzie and Quandt deposits, Brown showing, etc.

Evidence is equivocal. However, most of the deposits occur within high grade gneiss terrane, especially at the margins with lower grade greenstone belts. The pre-metamorphic, metal-rich precursor hosts may have been predominantly sedimentary or volcanic in nature. The deposits typically contain a significant proportion of anatectic pegmatite. The latter commonly contains an important volume of the mineralization, a clue to the metamorphogenic origin of the deposits.

Metamorphogenic deposits are assumed to have formed through metamorphism of specific metalliferous horizons with little, or no, introduction of mineralizing fluids from outside sources. Assuming these precursor horizons exhibit some lateral persistence, then prospective areas to search for further metamorphogenic deposits would include those areas along the trends of known occurrences, e.g. Wep-McKenzie trend (Brabant Lake).

Class 1: Former mines, current mines and advanced prospects

63-K-12-SW

Name: **Coronation Mine (Phil Lake)**

Location: Northeast shore of Phil Lake, a small lake approximately 22 km south-southwest of Flin Flon (Location 1, Fig. 18).

History and Development: The Coronation deposit was identified as a ground EM anomaly in a survey performed by Hudson Bay Mining and Smelting Co., Limited in 1952. The following year Hudson Bay drilled 55 holes on the conductor to outline an orebody approximately 20 m wide over a strike length of approximately 215 m to a depth of 335 m. Reserves were initially estimated at 545,000 tons @ 5.37% Cu, 0.5% Zn, 0.055 oz/ton Au and 0.23 oz/ton Ag to a depth of 600 ft (Byers et al., 1965). Revised reserves were estimated at 825,000 tons grading 5.08% Cu, 0.4% Zn, 0.044 oz/ton Au and 0.16 oz/ton Ag (Cairns, 1969).

During 1955-58, a three-compartment production shaft was sunk to a depth of 455 m with levels at 46 m intervals; 24m to the southeast, a two-compartment service shaft was sunk to 322 m. This development work and 261 underground drill holes allowed revision of the reserve estimate to 722,000 tons @ 4.83% Cu, 0.2% Zn, 0.06 oz/ton Au and 0.20 oz/ton Ag (Cairns, 1969).

Production commenced in 1960; total mineable reserves were increased with the discovery of additional ore and the lowering of the cut off grade during the later stages. The deposit was mined out by 1964. In 1965, the mine closed with total production figures of 1,412,861 tons grading 4.25% Cu, 0.3% Zn, 0.059 oz/ton Au and 0.14 oz/ton Ag (Saskatchewan Geological Survey, 1987), yielding a total of 107,936,503 lbs Cu, 4,960,196 lbs Zn, 12,464 lbs Cd, 118,041 lbs Se and Te, 75,055 oz Au and 167,437 oz Ag (MacDougall, 1983)

In 1981(?), Hudson Bay Exploration and Development conducted ground magnetometer and electromagnetic surveys and drilled one hole in the vicinity of the mine.

More recently, in 1988 L. Clark (and associates) conducted ground IP and resistivity surveys over an area including the Coronation mine site.

Geology and Mineralization: The Coronation orebody and enclosing host rocks are not exposed at the surface. The orebody is contained within a northwesterly trending sequence of southwest-dipping, northeast-facing basaltic volcanics of the Amisk Group. The latter include primarily massive, amygdaloidal and pillowed flows. West of the mine area, these rocks are stratigraphically underlain (?) by thick ultramafic to mafic sill-like bodies. East of the mine, the basaltic flows are stratigraphically overlain (?) by basaltic to andesitic pyroclastics and subordinate, semi-conformable quartz-feldspar porphyry bodies (Fig. 18).

In the immediate vicinity of the mine, a variably layered tuffaceous (?) horizon is intimately associated with the mineralization and attendant, late (?) foliation-parallel chloritic shearing. The tuff unit lies between an amygdaloidal flow and stratigraphically overlying massive to pillowed flows to the east.

The rocks have been metamorphosed to lower amphibolite facies.

The mineralized zone, comprising mainly varying amounts of pyrite, pyrrhotite and chalcopyrite, is approximately 275 m long, up to 35 m wide and 300 m in depth. The deposit is formed by three main ore lenses, namely the North Lens, South Lens and HW Lens, together with the subordinate Hanging Wall Branch and FW Lens. The lenses plunge steeply south, corresponding to the plunge of linear strucures in the surrounding volcanic rocks (Figs. 19, 20).

The North Lens (Fig. 21) is essentially a tabular mass of massive sulphide. The footwall contact against volcanics is relatively sharp; the hanging wall contact with cordierite-anthophyllite rock is gradational. The lens is formed mainly by pyrite and chalcopyrite, the latter forming up to 100 per cent in places. Pyrrhotite is conspicuous in the more massive sections. Kanehira (1969) recognizes two types of massive sulphide ore: massive pyrite and massive pyrrhotite-chalcopyrite. The massive pyrite ore comprises pyrite, silicates and subordinate chalcopyrite, sphalerite and magnetite. The massive pyrrhotite-chalcopyrite ore commonly exhibits a layered structure defined by alternating layers of pyrrhotite and chalcopyrite. It comprises approximately equal proportions of chalcopyrite and pyrrhotite and lesser silicates with subordinate sphalerite and magnetite. The silicate minerals comprise predominantly quartz and chlorite. Rare massive sphalerite ore occurs in places.

The South Lens forms more than three-quarters of

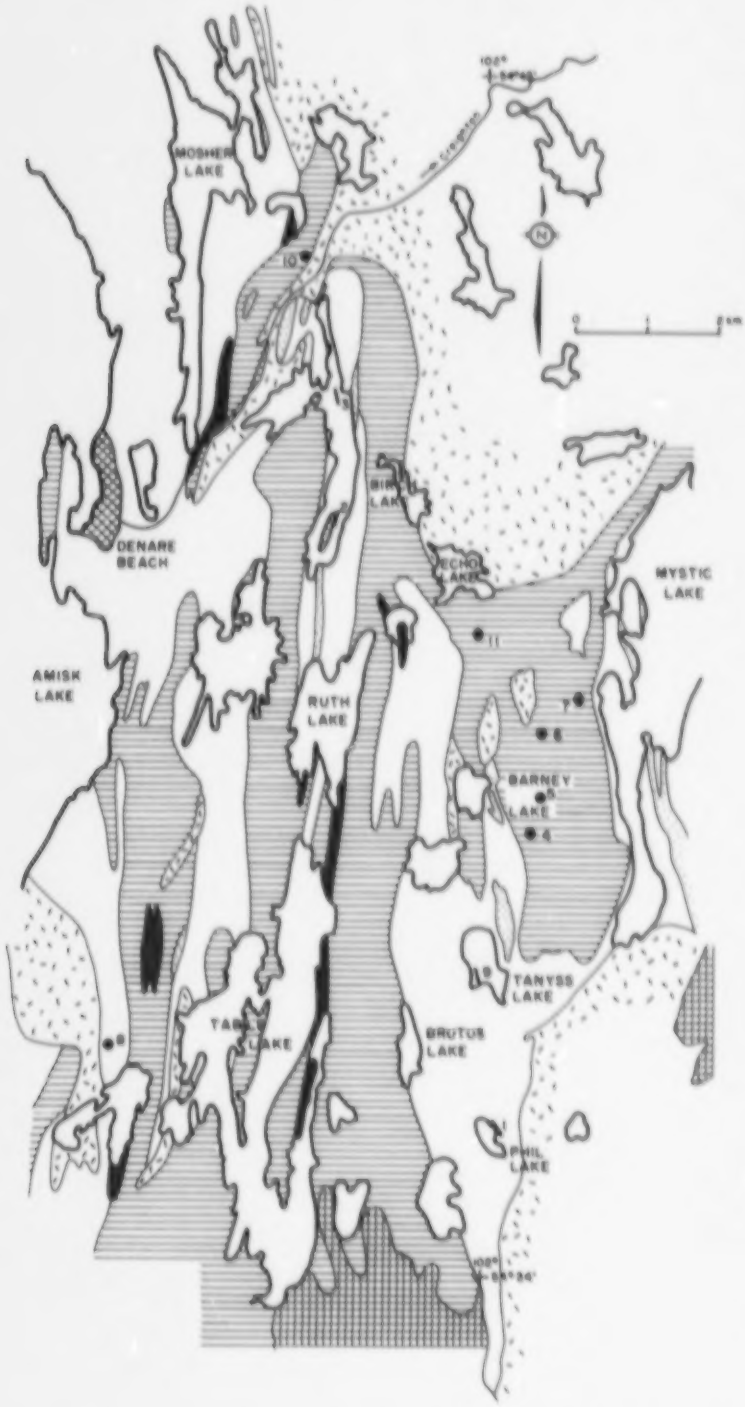


Figure 18. Geology and mineral deposits of the East Amisk area (geology after Byers and Dahlstrom, 1954, Byers et al., 1965 and McDougall et al., 1979).
Legend: Cross-hatching, Paleozoic cover rocks; Random dashes, Undivided granitoids; Horizontal hatching, Microdiorite (includes gabbro, mafic volcanics); Black, Ultramafic rocks; Dotted, Felsic volcanics (includes feldspar and quartz-feldspar porphyry); Blank, Mafic to intermediate volcanics
Occurrences: 1. Coronation mine, 2. Birch Lake mine, 3. Flexar mine, 4. Tanyss Lake N, 5. Barney Lake 1 (Tik 99), 6. Barney Lake 2 (Tik 89), 7. Mystic Lake (Tik 69), 8. Cable Lake, 9. Tanyss Lake W (Tik 145), 10. Curved Lake, 11. Echo Lake (Alf 35)

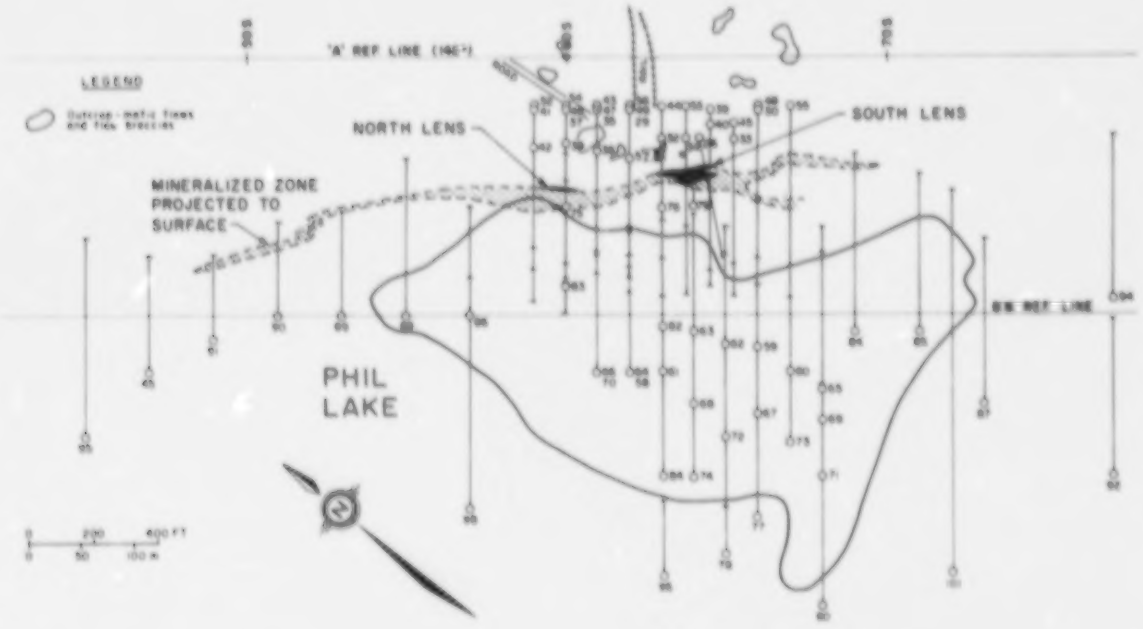


Figure 19. Geology and diamond drilling, Coronation mine (after Byers et al., 1965 and SEM Assessment File 63-K-12-0023).

the deposit (Figs. 21, 22). It comprises sulphide stockworks and intergrowths (reflecting a footwall alteration pipe ?) within predominant silicate gangue. Sulphide minerals form 10 to 20 per cent of the ore by volume. The ore is composed chiefly of chalcopyrite, pyrrhotite magnetite and gangue minerals. Pyrite, sphalerite and ilmenite occur in subordinate amounts. The gangue minerals comprise mainly anthophyllite, cordierite, biotite, quartz and chlorite with lesser andalusite, cummingtonite and gahnite. The sulphide-silicate ore commonly exhibits a streaky layering parallel the foliation in the surrounding rocks, particularly along the west side of the ore lens.

The HW Lens comprises patchy anthophyllite-cordierite rock and intermixed sulphides. The sulphide-silicate ore lens is essentially similar to the South Lens in mineralogy. Streaky layering is especially prominent throughout much of the lens.

In addition to the pyrite-pyrrhotite-chalcopyrite-sphalerite mineralization described above, both Kanehira (1969) and Whitmore (1969) mention the presence of rare, relatively flat-lying, narrow chalcopyrite-tetrahedrite-calcite veins throughout the deposit.

Remarks: The Coronation deposit comprises a metamorphosed copper-rich VMS. It is essentially formed by a relatively small massive sulphide lens (i.e. the North Lens, grading ± 6.5% Cu) , making up less than 20 per cent of the deposit, that is underlain by a larger alteration pipe (i.e. the South and HW Lenses, grading ± 4.5% Cu). The latter forms most of the remainder of the deposit. The mineralogy of the pipe (i.e. mainly anthophyllite-cordierite-magnetite-gahnite) is consistent with lower amphibolite facies metamorphism of the deposit. Current configuration of the respective ore lenses probably reflects post-mineralization shearing and attendant retrograde chloritization.

Available data precludes identification of any particular favourable lithology that hosts the Coronation deposit. Various workers refer to the local presence of tuffaceous rocks in both the mine itself and in the vicinity of the mine, but there is no direct evidence that these rocks host the mineralization itself. Indeed, the deposit appears to be hosted within relatively non-descript basaltic flows, probably at an interflow position.

References: Beck (1959), Byers et al. (1965), Cairns (1969), Froese (1969), Kanehira (1969), MacDougall (1983), Saskatchewan Geological Survey (1987), Whitmore (1969), SEM Assessment Files 63-K-12-0021, -0023, SMI-0023

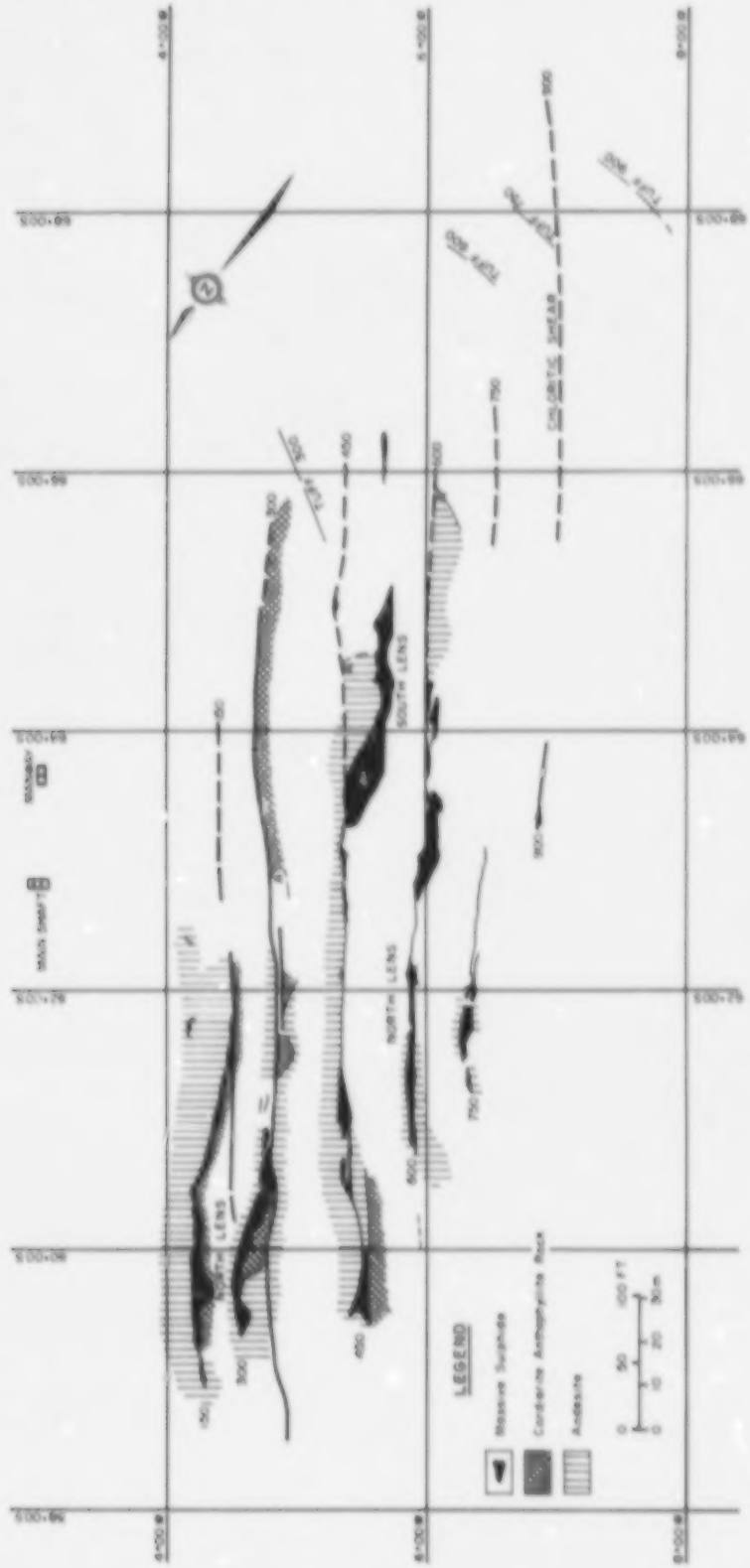


Figure 28. Composite level plan, Coronation mine (after Whitmore, 1969).

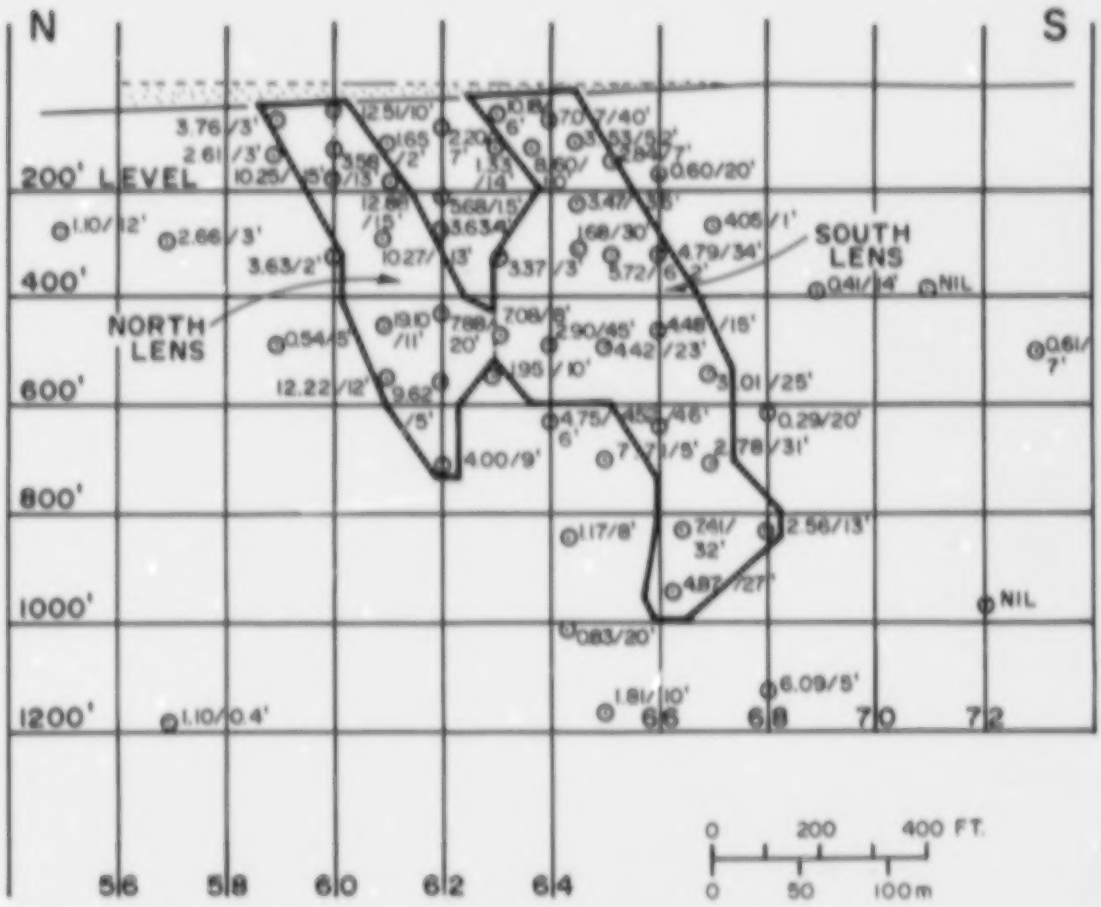


Figure 21. Longitudinal section showing diamond drill results, Coronation mine (after Cairns, 1969).

63-L-9-NE

Name: **Birch Lake Mine**

Location: Large island near the south end of Birch Lake, approximately 2.4 km east of Dsnare Beach (Location 2, Fig. 18)

History and Development: The Birch Lake deposit was discovered by propector J. Brain in 1949. That year the property was optioned to Hudson Bay Mining and Smelting Co. Ltd. who, in 1951-52, conducted prospecting, an electromagnetic survey and approximately 12,191 m of diamond drilling in 63 holes. During 1952 to 56, an additional 2,111 m of development drilling was conducted and a three-compartment shaft was sunk to 502 m, with lateral work on 6 levels. Reserves were estimated at 280,000 tons grading 6.2% Cu.

Production commenced in 1957 and continued to 1960, with total production of 307,265 tons averaging 6.17% Cu, 0.003 oz/ton Au and 0.12 oz/ton Ag yielding a total of 33,750,845 lbs Cu, 40,560 lbs Zn, 74 lbs Cd, 43,235 lbs Se and Te, 813 oz Au and 30,780 oz Ag (MacDougall, 1983). Ore was trucked to the nearby Coronation Mine and then hauled to Flin Flon by company railway. Mine buildings have all been dismantled and removed.

No further work was reported in the vicinity of the deposit until 1982 when HBED performed a ground EM and magnetometer survey in the area between Birch and Ruth Labels. In 1987, HBED conducted ground magnetometer and electromagnetic surveys and drilled one hole in the vicinity of the mine site.

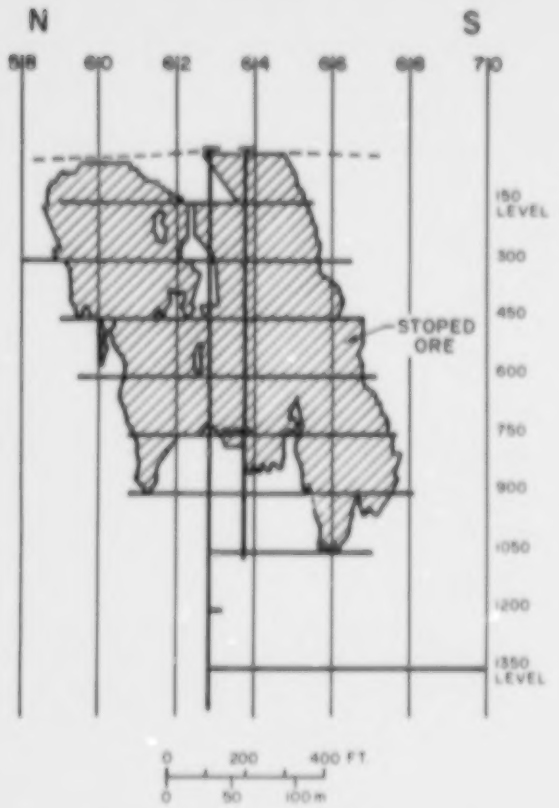


Figure 22. Longitudinal section showing final stoped area, Coronation mine (after Cairns, 1969).

Geology and Mineralization: The Birch Lake deposit is hosted within northerly trending, sub-vertical Amisk Group volcanics (Fig. 18). The latter have been deformed by several, relatively tight northerly trending folds. The rocks have been subjected to greenschist facies metamorphism.

The immediate host rock is a thin rhyolite tuff-agglomerate unit. To the east, structurally underlying footwall rocks comprise a 250-300 m thick sequence of pillowed basalt. To the west, hanging wall rocks are formed by andesitic tuff.

The rocks in the immediate vicinity of the mineralized horizon are variably sheared and altered to chlorite schist. The latter, possibly representing modified footwall alteration, hosts the sulphide mineralization.

Mineralization comprises chalcopyrite, pyrrhotite, pyrite, magnetite and sphalerite. These minerals occur as disseminations and small lenses and veinlets from less than one or two centimetres to several metres wide.

The deposit comprises several tabular ore lenses that average 1.5 to 2.0 m in width and 50 to 100 m in length (Figs. 23, 24). Chalcopyrite locally forms up to 30 to 40 per cent of the ore lenses.

The deposit was mined over a length of ±200 m from the 400 ft level to the 1,550 ft level (Fig. 25).

References: Beck (1959), Byers and Dahlstrom (1954), MacDougall (1952), MacDougall (1983), McDougall et al. (1979), Sabina (1972), Saskatchewan Geological Survey (1987), SEM Assessment Files 63-L-09-0008, -0009, -0052, -0061, -0103, SMI-0113

Name: **Flexar Mine**

Location: 1.5 km north of the Birch Lake mine, opposite the mouth of the west bay at the north end of Birch Lake (Location 3, Fig.18)

History and Development: The Flexar deposit was outlined by an electromagnetic survey during exploration work by Hudson Bay Mining and Smelting in the vicinity of the Birch Lake mine in 1951.

The property was acquired from prospector J. Brain in 1952. In the same year, the company drilled 15 holes and outlined a small copper deposit. Proven ore reserves, reported in December, 1960 were 272,500 tons averaging 4.23% Cu, 0.40% Zn, 0.03 oz/ton Au and 0.12 oz/ton Ag (MacDougall, 1983).

Mine development began in 1963 with the sinking of a shaft to 356m. The shaft was deepened in 1968 to 418 m. The mine commenced production in 1969 at a rate of 210 tons per day (increased to 277 tons per day in 1970).

The mine operated from 1969-1972, producing a total of 337, 146 tons grading 3.75% Cu, 0.47% Zn, 0.04 oz/ton Au and 0.19 oz/ton Ag (Saskatchewan Geological Survey,1987) and yielding 25,236,754 lbs Cu and 10,111 oz Au (MacDougall, 1983).

Geology and Mineralization: The deposit lies under the waters of Birch Lake. Available information is very limited. According to McDougall et al. (1979) the geological setting of the Flexar deposit is very similar to that of the Birch Lake deposit, 1.5 km to the south (see Birch Lake mine).

Ore occurs in chlorite schist between two andesitic (?) flows and comprises a fine grained massive sulphide lens formed by chalcopyrite, pyrrhotite

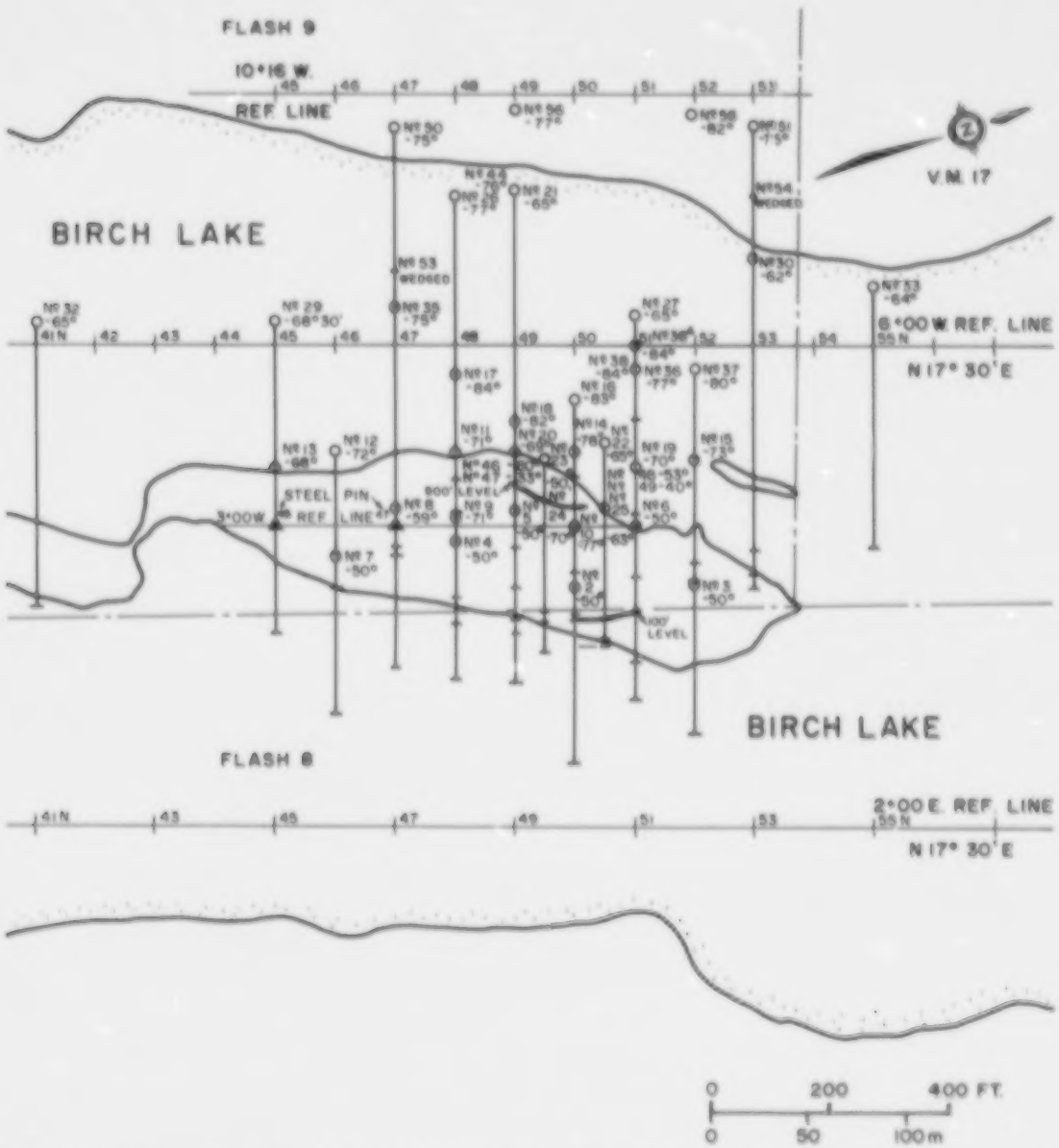


Figure 23. Plan of surface diamond drilling, Birch Lake mine (from SEM Assessment File 63-L-09-0008).

and pyrite and minor magnetite and sphalerite.

Contacts with the adjacent wall rocks are very sharp; chloritic alteration extends only a few metres from the sulphide contacts.

The orebody averages 215 m long and varies from a few centimetres to 3.0 m wide (average 1.5 m wide) and extended from the 475 ft level to the 1250 ft level (i.e. a vertical extent of ±240 m). It exhibited a near vertical plunge (Fig. 26).

References: Beck (1959), Byers and Dahlstrom (1954), Hawkins and Martin (1970), MacDougall (1983), McDougall et al. (1979), Saskatchewan Geological Survey (1987), SEM Assessment Files 63-L-09-0008, -0009, -0061, -0062, -0103, SMI-0117

Figure 24. Diamond drill hole cross section 50N, Birch Lake mine (from SEM Assessment File 63-L-09-0008).

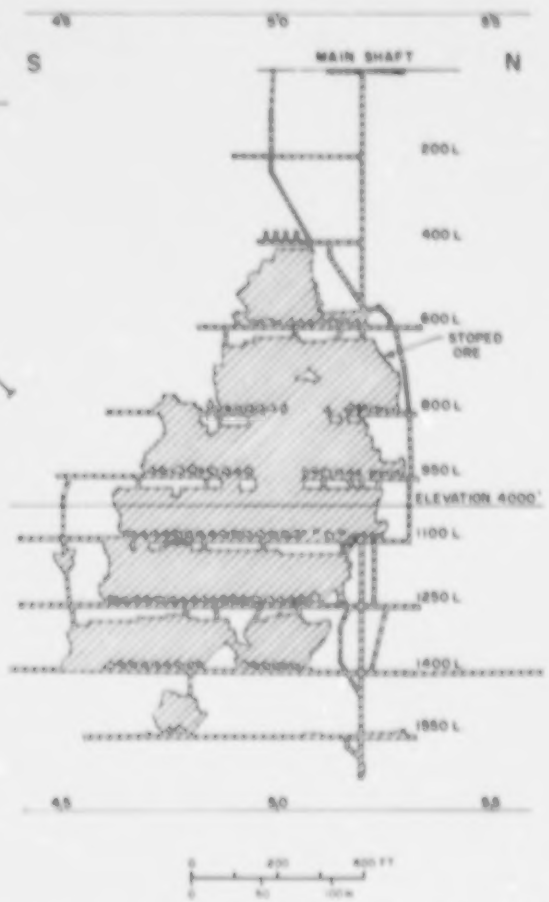


Figure 25. Longitudinal section showing final stoped area, Birch Lake mine (from SEM mine plans).

63-L-10-NW

Name: **Ramsay (Quandt, Keputch)**

Location: Northeast shore of a small lake (Little Keputch Lake) and 300 m west of Keputch Lake, approximately 0.8 km northeast of Botham Bay, Hanson Lake (Location 4, Fig. 37).

History and Development: The deposit was discovered by D. A. Ramsay in 1954. In the same year, Tombill Gold Mines Limited optioned the property and conducted trenching and 1829 m of diamond drilling on the deposit. The 23 holes tested the mineralization over a length of 425 m and to a depth of 120 m. The option was dropped in 1955. Ramsay conducted further trenching in 1956 which extended the mineralization an additional 300 m to the north. In 1957 the claims were transferred to A. K. Quandt.

Additional diamond drilling in 1966 (Fig. 27) outlined a deposit (the main zone) containing approximately 500,000 tons grading 2.5 to 3.0 % Cu and 1.0 to 2.0% Zn. Reserves were re-estimated in 1968 at 710,000 tons and in 1972 at 900,000 tons averaging 2.0% Cu and 2.0% Zn.

In 1984 SMDC (now Cameco) optioned the property from Share Mines and Oils Ltd and Western Nuclear Mines. In 1985-86, SMDC

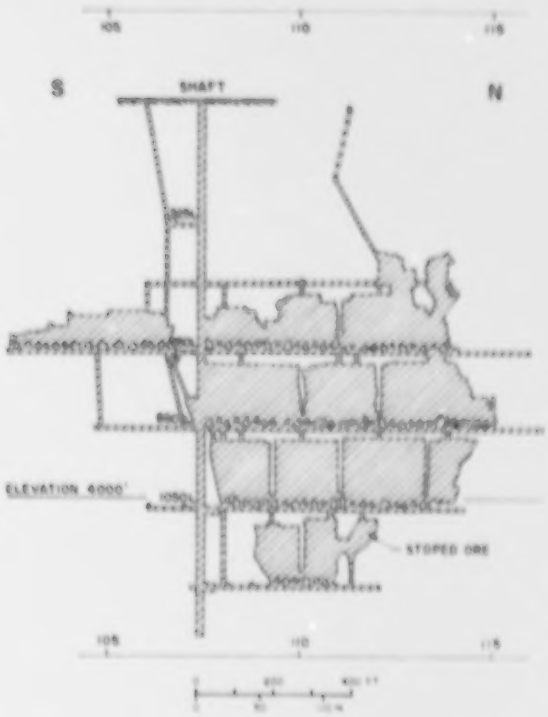


Figure 28. Longitudinal section showing final stoped area, Flexar mine (from SEM mine plans).

conducted geological mapping and sampling, geophysical surveys and diamond drilling. The option was dropped in 1987.

The property covering the deposit (ML 5053) is currently owned by Share Mines and Oils Ltd (50%) and Western Nuclear Mines (50%). Updated reserves are reported to be 814,648 tons grading 2.15% Cu, 1.77% Zn, 0.23 oz/ton Ag and 0.003 oz/ton Au to a depth of 335 m (**Canadian Mines Handbook**, 1989-90).

Geology and Mineralization: The Ramsay deposit is hosted within predominant biotite±garnet gneisses of the Hanson Lake Block. Subordinate hornblende gneiss and amphibolite units are intercalated with the biotitic gneisses. Narrow bands of *lit-par-lit* aplite and pegmatite upto three metres wide are common throughout the gneisses. The rocks occupy the core of a large south plunging, north trending antiformal structure (Fig. 37).

The deposit is hosted within a chloritic, north trending, axial planar shear zone (the 'main shear') in the nose of the regional antiform. The shear zone varies from 6 to 20 m wide and dips east at 40 to 65 degrees.

Mineralization is mostly confined to the hanging wall portion of the shear. Pyrite, pyrrhotite, sphalerite, chalcopyrite and rare native copper occur as massive replacements (?), intergranular fillings or other irregular fracture fillings in the sheared gneisses and associated pegmatites. The latter characteristically comprise light greenish grey oligoclase, quartz and minor biotite.

References: Beck (1959), Byers (1957), Johnson (1967), Saskatchewan Geological Survey (1987), SEM Assessment Files 63-L-10-0016, -0027, -0049, SMI-0182

63-L-11-SE

Name: **Bigstone (Limestone Lake)**

Location: Approximately 1.5 km east of Limestone Lake and 2.0 km northwest of the south end of Bigstone Lake, about 85 km west of Flin Flon, (Location 5, Fig. 37).

History and Development: Several companies (including Hudson Bay, Selco, Inco, Freeport Canada and Hanson Lake Mines, among others) had explored in the area during the 1960s and 1970s. These companies carried out geophysical surveys and some diamond drilling.

In 1963-64, Selco performed electromagnetic and gravity surveys in the area; one hole (157 m) was drilled approximately 1.5-2.0 km north of the deposit. In 1966-67, Western Nuclear Mines Ltd. drilled six holes (totalling 1,087 m) on EM conductors in the area; copper mineralization was encountered in one of the holes drilled about 1.5 km east of the deposit. In 1967, Inco drilled three holes (totalling 446 m) in the area; one hole intersected weak mineralization about 1.5 to 2.0 km south of the deposit.

In 1980, Granges Exploration AB entered into an option agreement with Geosearch Consultants Limited to acquire sole rights to the latter company's Bigstone claims. In 1981, SMDC (now Cameco) entered into a joint venture with Granges on the Bigstone property on a 50:50 participation basis.

Granges (as operator) carried out extensive geophysical (including airborne INPUT and ground EM and magnetometer) surveys and follow-up anomaly drilling.

Figure 27. Diamond drill hole plan, Ramsay deposit (from SEM Assessment File 63-L-10-0049).

In October, 1982 the joint venture (Granges 29%-Outokumpu Oy 21%-SMDC 50%) announced the discovery of the Bigstone deposit. The discovery hole (No. 18) returned 5.49% Zn, 0.20% Cu, 0.25 oz/ton Ag and 0.009 oz/ton Au over 3.6 m from 63.8 m to 67.4 m and 5.26% Zn, 0.04% Cu, 0.04 oz/ton Ag and 0.001oz/ton Au over 2.1 m from 125.5 m to 127.6 m.

By November, 1984 more than 19,200 m had been drilled on the property and probable reserves were estimated at 3,946,000 tons grading 1.87% Cu, 1.1% Zn, 0.92 oz/ton Ag and 0.013 oz/ton Au with a higher grade zone estimated at 290,000 tons grading 16% Zn. In 1985-86, Granges reported a further EM survey and additional drilling (16 holes, totalling 1525 m).

In June, 1985 Granges announced two parallel deposits at Bigstone, containing respectively 1.4 million tons grading 2.9% Cu and 372,000 tons grading 11.2% Zn. Current (1989) reserves are reported as 1.6 million tons averaging 2.9% Cu and 340,000 tons averaging 11.2 Zn.

Geology and Mineralization: The Bigstone deposit does not crop out. It lies beneath 40 to 50 m of Paleozoic cover rocks, about 12.5 km south of the edge of the exposed Precambrian.

The deposit is hosted in northerly trending, steeply dipping (sub-vertical) Aphebian (?) volcanic rocks. The latter are cut by numerous late, north trending faults of the Tabbernor Fault Zone. The deposit actually lies between two prominent splays of the Tabbernor Fault - the West Sarginson Lake and the Unser Lake Faults - lying to the east and west of the deposit respectively. Assuming the West Sarginson Lake Fault demarks the west boundary of the Hanson Lake Block, then the deposit is hosted in rocks of the Glennie Lake Domain. In fact, the writer suggests there is a continuum of volcanics from the Hanson Lake Block into the Glennie Domain in this part of the Reindeer Zone.

There is very little information available on the deposit. Saskatchewan assessment files remain confidential until mid-1990 at the earliest.

The deposit comprises essentially separate zinc- and copper-rich lenses. The latter lies east of the zinc-rich lens, suggesting the deposit faces to the west. The sulphide lenses occur within a 50 m (?) thick rhyolite unit that is underlain and overlain by andesite (Fig. 28).

References: Granges Exploration Ltd., (Company Public Offering Prospectus, Richardson

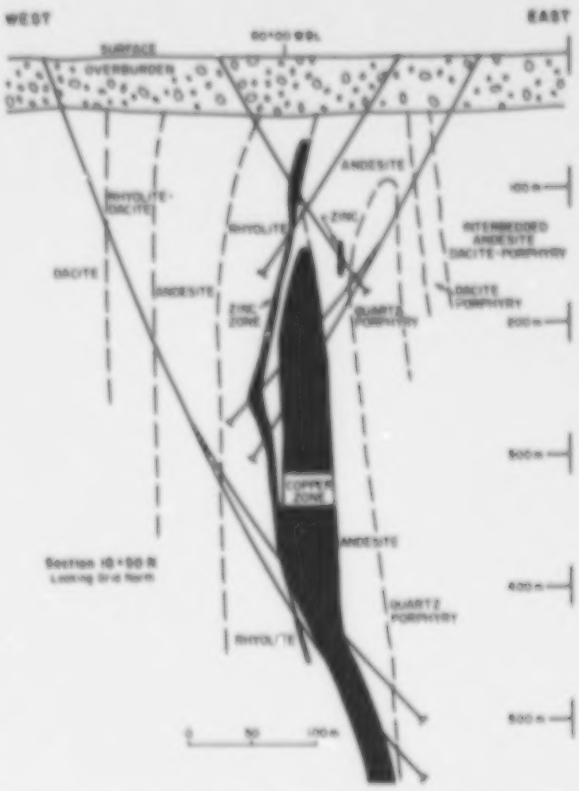


Figure 28. Diamond drill hole cross section 16+50N, Bigstone deposit (from Granges Exploration Ltd. - a presentation outline, dated 1984)

Greenshields, October 12, 1984; Company Presentation Outline, undated - June, 1984?), **The Northern Miner** (October 7, 1982; June 27, 1985), SEM Assessment Files 63-L-10-0010, -0015, -0022, SMI-1779

63-L-16-NW

Name: **Otonadah**

Location: Approximately 900 m north of the west end of Little Otonadah Lake, a small lake about 800 m west of Tyrrell Lake (Location 6, Fig. 37)

History and Development: In 1966 Hudson Bay Exploration and Development Co. established a large grid over the Otonadah-Tyrrell Lakes area and performed horizontal loop EM and Turam surveys. Subsequent drill testing of selected conductors began in 1967 and continued in 1973. A total of 36 holes were drilled on the property; 18 of these holes were drilled on the deposit in 1967 and two of the holes were drilled in 1973 (Fig. 29).

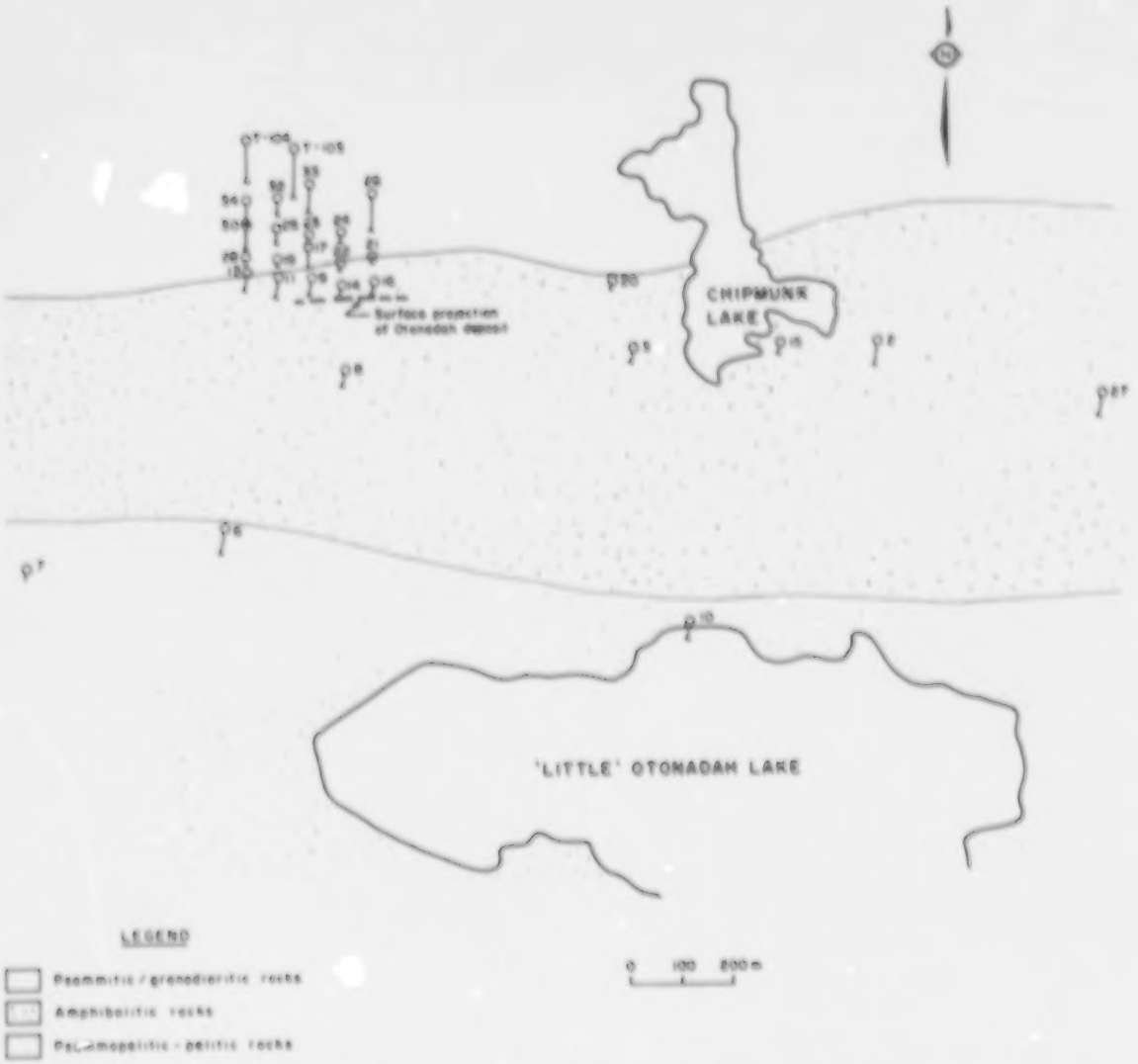


Figure 29. Geology and diamond drilling, Otonadah deposit (after SEM Assessment Files 63-L-16:0055, -0109).

Recent exploration in the vicinity of the deposit, comprising geological mapping, lithogeochemistry, humus geochemistry and VLF-EM surveying, was conducted by Homestake Mineral Development Company in 1986.

Estimated reserves total 120,000 tons @ 2.8% Cu, 1.2% Zn, 0.16 oz/ton Au and 0.23 oz/ton Ag (Saskatchewan Geological Survey, 1987).

Geology and Mineralization: The Otonodah deposit is hosted within easterly trending, north dipping Nokomis Group (Amisk equivalent) gneisses of the Kisseynew Domain. Mineralization occurs near the stratigraphic top (?) of a intercalated sequence of hornblende±pyroxene-garnet gneisses and garnet amphibolites. The latter, in turn, appear to be near the top of the Nokomis Group, at the contact with overlying Sherridon-type gneisses.

The amphibolitic rocks (referred to as the 'transitional zone' elsewhere in the Kisseynew Domain) probably include Amisk-equivalent mafic flows and tuffs, wackes and iron-rich sediments.

They are structurally (and stratigraphically ?) underlain by sediment-derived biotite-garnet gneisses and overlain by Sherridon-type quartz-feldspar-biotite gneisses (sub-arkosic sandstone ? - mapped by Byers and Dahlstrom (1954) as granodiorite) (Fig. 29).

The rocks have been metamorphosed to amphibolite facies.

The mineralization is located near the top of the Nokomis Group, within 5-10 m of the base of the Sherridon Group. Drill logs describe the immediate host rocks as a variety of quartz-hornblende-biotite to quartz-biotite-chlorite schists and gneisses. Apparently, the rocks are garnet-bearing immediately beneath the zone; garnets are rare to absent within and above the zone.

The deposit comprises a 1-2 m thick horizon of disseminated to semi-massive sulphides over a length of 250 m and to a vertical depth of 210 m (275 m down dip). Maximum sulphide concentrations are in the order of 60 per cent pyrrhotite, 15 per cent pyrite, 15 per cent chalcopyrite and 5 per cent sphalerite.

References: Beck (1959), Byers and Dahlstrom (1954), Saskatchewan Geological Survey, (1987), SEM Assessment Files 63-L-16-NW-0026, 63-L-16-NE-0055, -0109, SMI-0307

63-M-15-SE

Name: **Mokoman Lake (Knife Lake)**

Location: Approximately 400 m west of Mokoman Lake, a lake about 1.5 km west of Scimitar Lake (Location 7, Fig. 5)

History and Development: The first recorded prospecting in the Mokoman (Knife) Lake area was in 1968. A Straus Exploration Inc.- Marietta Resources International Ltd.-St. Joe Minerals Joint Venture acquired the ground covering the deposit in 1969. During 1969-71, Straus Exploration conducted airborne and ground EM surveys, ground magnetometer and soil geochemical surveys and drilled 96 holes (totalling 8232 m).

In 1973, reserves were estimated at 6,000,000 tons grading 0.6% Cu. The property was transferred to A.L. Parres in 1974.

Geology and Mineralization: The Mokoman Lake deposit is hosted within a series of northerly trending, easterly dipping psammites (feldspathic sandstones), biotite gneisses (greywacke-

Figure 30. Geology in the vicinity of the Mokoman deposit (after Pearson, 1973).

derived?), diopside-bearing gneisses (in part derived from mafic volcanics) and amphibole-bearing gneisses (mainly mafic volcanics and volcaniclastics). These rocks form part of the Scimitar greenstone belt of the Kisseynew Domain.

The rocks have suffered at least three fold events and have been metamorphosed to upper amphibolite facies.

The mineralized zone is about 350 m long and 20 to 50 m wide. It dips variably east at 30 to 45 degrees. The zone transgresses primary layering and the early layer-parallel foliation. The shape of the mineralized zone resembles a folded surface and transgresses the limbs and axial plane of major post-foliation folds, i.e. the zone does not appear to be structurally controlled by the folding.

The mineralization, comprising mostly pyrrhotite, pyrite, chalcopyrite and rare sphalerite, is most commonly contained within a greenish coloured, pegmatoid felsic gneiss. The latter is formed by quartz, K-feldspar, green plagioclase, biotite, amphibole and minor magnetite. The sulphides rarely form more than 20 per cent by volume.

Remarks: Pearson (1973) suggests the amphibole-bearing gneisses of the Scimitar Lake area represent the northern continuation of the Amisk Group volcanics of the FlinFlon area.

References: Pearson (1973), SEM Assessment Files 63-M-15-0002, -0004, SMI-0406

73-P-06-SE

Name: **Anglo-Rouyn Mine**

Location: The shaft lies 450 m southwest of 'A' Lake, a small lake on Williams Peninsula, which forms the southeast shore of Wadin Bay on the north shore of Lac La Ronge (Location 2, Fig. 12)

History and Development: A copper showing at Moose Point, Williams Peninsula was reported in 1909 by W. McInnes of the Geological Survey of Canada. This was the earliest reported base metal showing in Saskatchewan. In 1915, the showing was staked by the Hall brothers. Cominco optioned the property in 1929 and conducted trenching and diamond drilling (12 holes, 2680m.). The property was allowed to lapse in 1950 and was restaked in 1951.

Anglo-Rouyn Mines Ltd. optioned the property in 1951 and conducted an extensive exploration program comprising geological mapping, trenching, sampling and 3720 m (50 holes) of diamond drilling (Fig. 31). In 1955-56 the company carried out an underground exploration program, comprising emplacement of a vertical shaft to 166 m (with levels at 53 m, 85 m, 120 m and 154 m) and 824 m of lateral development.

Reserves were estimated in 1956 at 2,445,000 tons grading 1.95% Cu with low values of Au and Co. In that year, W.J. Pearson of the Saskatchewan Department of Mineral Resources conducted an investigation of the aeromagnetic anomaly in the vicinity of the mine site (Pearson, 1957). A further 27 holes (6687 m) were drilled on the deposit in 1957.

Following this program, the property was dormant until 1963, when road access caused the deposit to become viable. That year Rio Algom Mines Ltd. conducted further exploration, leading to a production decision by Anglo Rouyn Mines Ltd. in 1964 at a proposed rate of 900 tons per day. In 1964-65, a further 33 holes (totalling 7786 m) were drilled and the old shaft was dewatered and deepened to 244m. Diluted reserves were estimated in 1965 at 2,000,000 tons grading 2.4% Cu and 0.018 oz/ton Au (Saskatchewan Geological Survey, 1987). Mill construction commenced in 1965 and the 900 tons per day mill was completed in January, 1966. The first concentrate arrived at the Flon Flon smelter a month later.

During 1965-70, two open pits were operated: about 102,000 tons @ 1.72% Cu was produced from a pit immediately east of 'A' Lake during 1966-67 and a further 317,000 (?) tons was mined from a pit at 'C' Lake (1.5 km further NE) during 1969-70. Also during 1969-70, a 600 m long decline was driven southwest from the lowest mine level (Level 5) to access additional ore. As well, a further decline was driven from 'C' Lake to the east and became operational in 1970. The favourable Anglo-Rouyn host horizon was mined over a strike length of approximately 3.5 km.

During the mine production, Riocanex delineated a southwesterly extension to the main ore zone with an induced polarization survey and an additional 1162m (5 holes) of diamond drilling.

The mine operated from 1966 to 1972, producing a total of 62,227,117 lbs copper, 67,652 oz gold and 309,600 oz silver from 1,892,800 tons of milled ore. A report by R. L. McPherson in 1972 indicated an additional remaining 184,554 tons of ore in the mine grading 1.74% copper (SEM

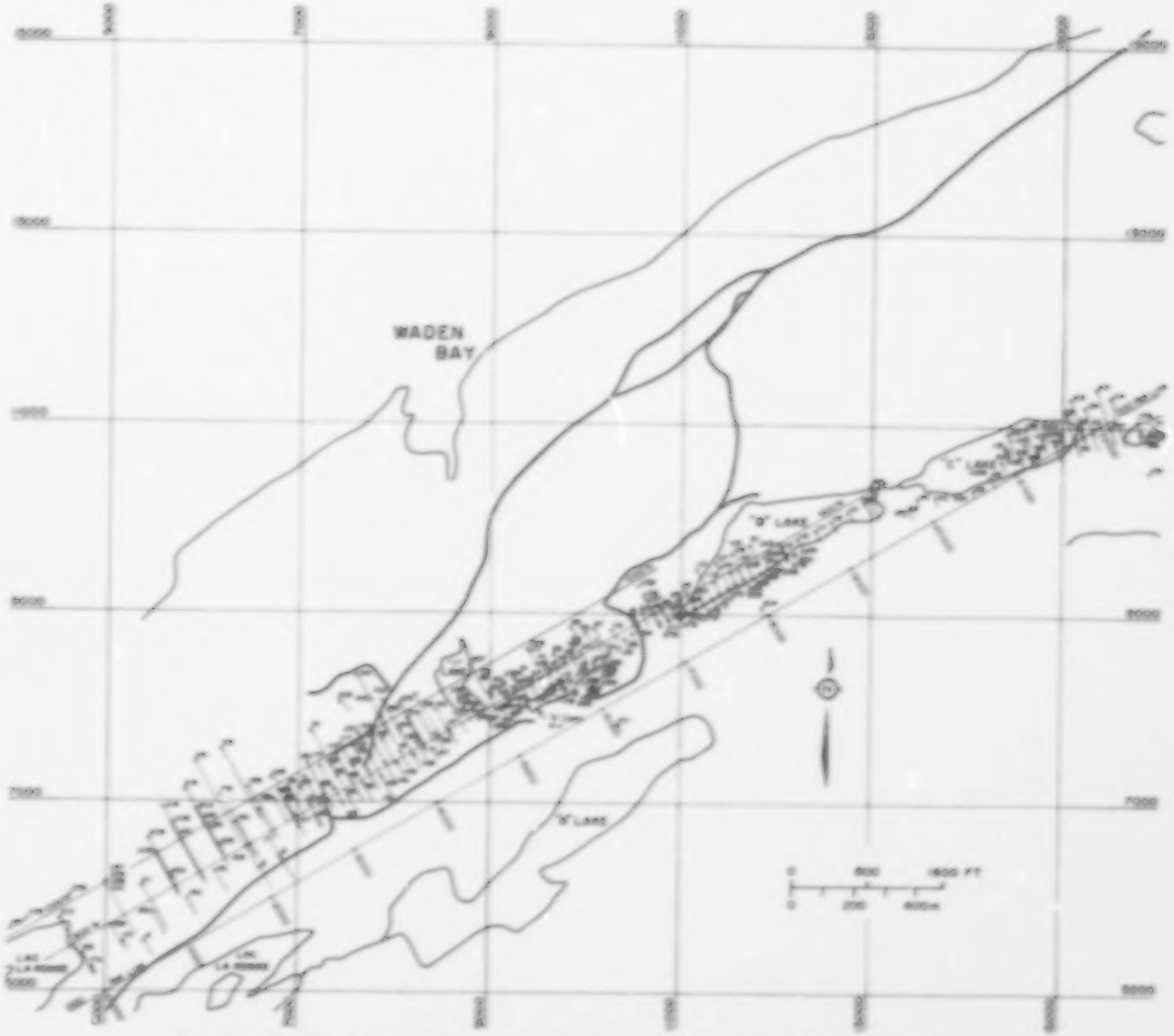


Figure 31. Diamond drilling, Anglo-Rouyn mine area (from SEM Assessment File 73-P-06-0039).

Assessment File 73-P-06-0113).

The property containing the Anglo Rouyn deposit was allowed to lapse in 1983 and was restaked in the same year by M.C. Leaderhouse. The property was optioned to Noranda Exploration Co. Ltd. who conducted trenching and sampling, sampling of old drill core, soil sampling, geological mapping, a ground magnetometer survey and diamond drilling (9 holes). The option was subsequently dropped.

In 1988-89, Tusk Minerals Inc. and Kristo Gold Inc. conducted prospecting, geological mapping and geophysical surveys in the vicinity of the Anglo-Rouyn mine site. The program reportedly identified a likely western extension of the Anglo-Rouyn ore body (Tusk Minerals Inc., 1988 Annual report, Sept 8, 1989).

Geology and Mineralization: The Anglo-Rouyn deposit occurs within northeast trending, northwesterly dipping sediment- and/or tuff-derived (?) supracrustals of the La Ronge Domain. The latter are immediately overlain to the northwest by the sheared Jepson Lakes granodiorite sill (Fig. 32).

The supracrustals have suffered at least two phases of deformation: early, tight, shallow, doubly plunging (i.e. to the southwest and northeast) folds are deformed by more open, northerly plunging folds. A prominent lineation is co-axial with the early folding. The rocks have attained lower amphibolite facies metamorphic grade.

Copper mineralization occurs within the supracrustals, 25 to 50 m from the hanging wall granodiorite contact. Similar mineralization is known at this favourable horizon over a length of more than 20 km, from Williams Peninsula, in the southwest, northeastwards to Rob Lake.

The deposit is hosted within 'greywacke' (mine term), a variably layered feldspathic sandstone or felsic tuff. An 'arkose' (mine term), also variably layered and probably derived from feldspathic quartzite or felsic tuff, occurs as a 5 to 30 m (?) thick blanket-type unit within the 'greywacke'. It structurally overlies the ore, occurring between the ore lenses and the granodiorite contact.

The Anglo-Rouyn deposit comprises three principal orebodies: the 'A', 'B' and 'C' orebodies (Figs. 33, 34). The 'A' orebody crops out immediately east of 'A' Lake (in the 'A' open pit) and plunges gently to the southwest. The 'B' orebody does not outcrop, but lies under 'B' Lake, about 600 m northeast of the 'A' open pit. The 'C' orebody crops out at 'C' Lake (in the 'C' open pit) and plunges gently northeast. The 'A' orebody supplied the vast majority of ore during the life of the mine.

The 'A' orebody comprises four, ruler-shaped, en echelon ore lenses (Zones 1, 2, 3 (or 'main') and 4) that plunge southwest at 8 to 10 degrees (Fig. 33A, 33B). The lenses vary considerably in dimensions. Zone 3 (the largest) extends southwesterly from the surface in the 'A' pit (approximately 700 m northeast of the shaft) to a depth of about 300 m (approximately 1,000 m southwest of the shaft). It is about 15 m wide, up to 60 m in depth and extends more than 1,750 m down plunge. The lenses plunge parallel to a prominent linear rodding structure in the enclosing rocks.

The 'B' and 'C' orebodies lie respectively about 1,400 m and 2,400 m northeast of the shaft (Fig. 33B). The 'B' orebody, mined from a drive on Level 2, is approximately 180 m long and 45 m deep. It appears to exhibit a relatively flat to gentle, southwest plunge. The 'C' orebody, mined from a 550 m long decline immediately southwest of 'C' Lake, is about 425 m long and 60 to 75 m deep. It appears to plunge gently to the northeast. It is not clear whether the 'B' and 'C' orebodies are the northeasterly, folded continuations of the 'A' orebody, or separate lenses altogether.

The ore lenses, generally containing greater than 2.0 per cent copper, comprise a variety of different textural types. The latter range from finely laminated ore, showing little sign of segregation or mobilization, to ore exhibiting extreme segregation. The finely laminated variety is formed by fine grained pyrite, pyrrhotite and chalcopyrite and minor magnetite. It may well represent the primary mineralization. A coarser grained laminated ore, formed by pyrrhotite and chalcopyrite and quartz segregations, contains traces of sphalerite, molybdenite and gold. Extreme segregation is evidenced by keel-like structures and masses of chalcopyrite filling fractures, especially in fold closures and boudin necks.

Minor galena and pentlandite and traces of chalcocite and bornite (as secondary minerals ?) are also reported from the deposit.

The lenses are typically enveloped by lower grade, disseminated pyrite-pyrrhotite-chalcopyrite mineralization. The envelope may extend 30 m from the ore boundaries.

Considerable epidotization, locally in association

Figure 32. Geology in the vicinity of the Anglo-Rouyn mine.

Figure 33a. Composite plan of the 'A' orebody, Anglo-Rouyn mine (after Forsythe, 1971, 1972a).

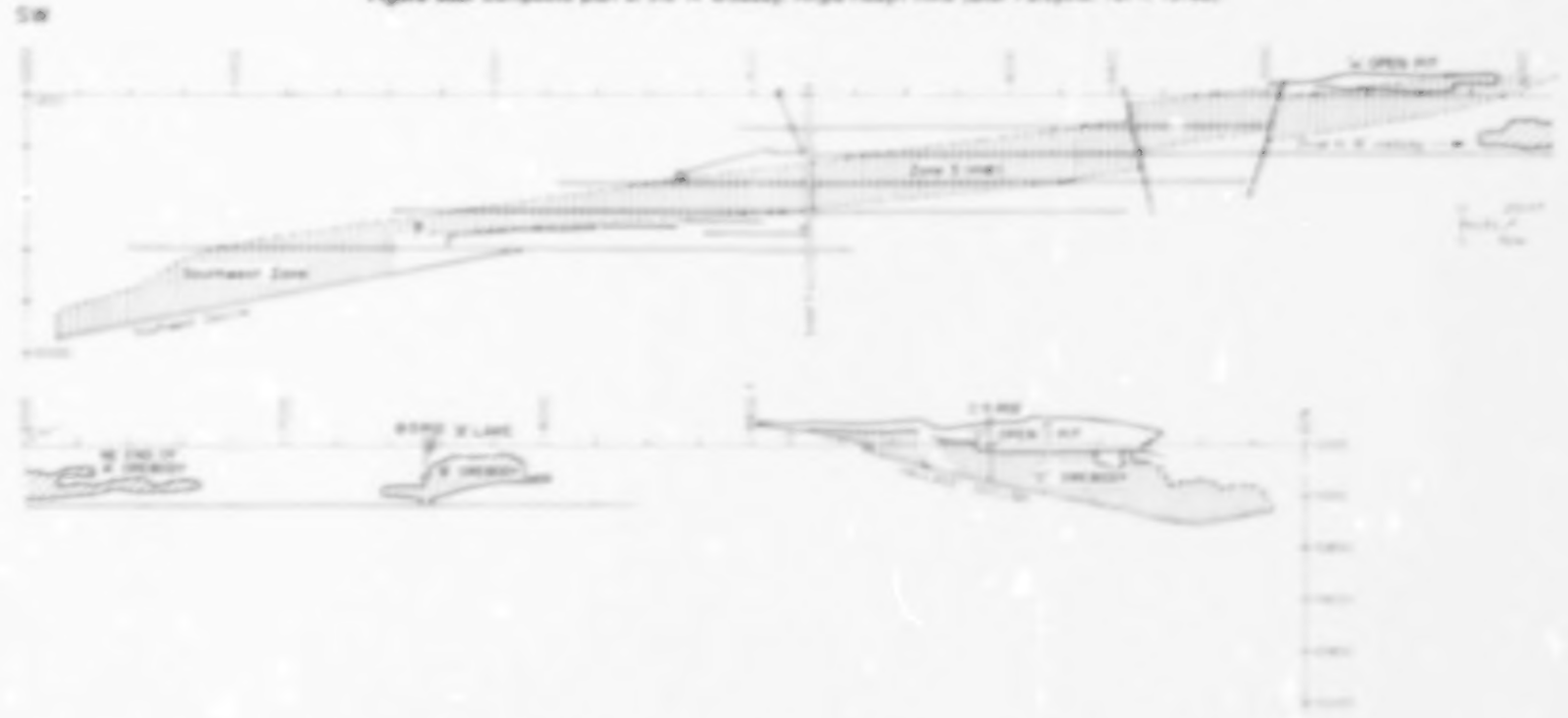


Figure 33b. Composite longitudinal section of the 'A', 'D' and 'C' orebodies, Anglo-Rouyn mine (after Forsythe, 1971, 1972a and SEM Assessment File 73-P-08-0113).

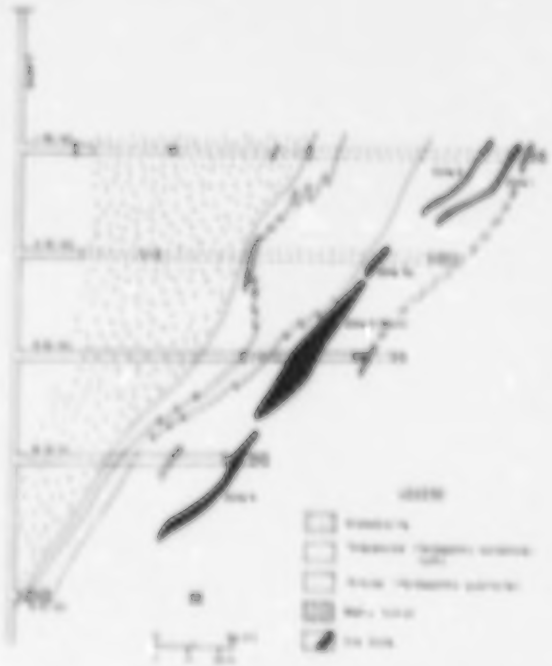


Figure 34. Cross section 13225N, Anglo-Rouyn mine (after Forsythe, 1971, 1972a).

with the development of irregular patches of coarse grained garnets, occurs along the flanks of the ore lenses. This may represent wall rock alteration.

Remarks: A persistent zone of deformation parallels the orebody, lying within the supracrustals but close to the hanging wall contact with the Jepson Lakes sill. Other layer-parallel shear zones occur within the footwall rocks. The relationship of these deformation zones with the ore lenses is unclear; some workers believe these structures may have produced post-mineralization thinning and repetition of the original orebody leading to the present configuration of discrete lenses.

The origin of the Anglo-Rouyn deposit is highly enigmatic. Clearly, the mineralization pre-dates the early fold deformation (and possibly associated faulting ?). Several workers have proposed various genetic models, e.g. magmatic-hydrothermal mineralization from the Jepson Lakes sill, syngentic or syn-sedimentary type mineralization, skarn etc.

References: Beck (1959), Forsythe (1971, 1972a), Lawton and Steen (1971), Pearson (1957), Sabina (1972), Saskatchewan Geological Survey (1987).

SEM Assessment Files 73-P-06-0037, -0038, -0039, -0046, -0059, -0099, -0100, -0106, -0107, -0113, Skopos and Lawton (1968), SMI-0732

73-P-06-SW

Name: **Elizabeth Lake**

Location: Underlying, and northeast of, Elizabeth Lake, a small lake approximately 5 km north of the fishing lodge in the central part of Nemeiben Lake (Location 3, Fig. 12)

History and Development: In 1967, H. Isbister discovered pyrite-molybdenite mineralization in pegmatite just west of Elizabeth Lake. Soon after, he discovered copper in biotite schists on the west shore of the lake. In 1968, a local prospecting syndicate (V. Studer, M. Lindskog, G. Thompson and H. Isbister) trenched the discovery outcrop and staked the immediate area. In August 1968, Noranda Exploration optioned the property and carried out a ground EM survey and drilled 23 holes (totalling 6,614 m) during 1968-69. The option was dropped in the fall of 1969.

In November, 1969 the property was transferred to Studer Mines. Uranium Valley Mines optioned the property in December, 1969 and, the following year, performed an airborne EM survey, mapping, trenching, a small IP survey and drilled 17 holes (totalling 3,702 m). The option was later dropped and returned to Studer Mines.

The drilling (Fig. 35) outlined the presence of two separate mineralized 'shoots' or lenses: the North Zone and the South Zone (at the northeast and southwest ends of Elizabeth Lake respectively). Drill-indicated probable reserves were reported in 1971 as follows:

Zone	Cut-off (%Cu)	Tons	%Cu
South	0.60	892,500	0.61
North	0.60	3,447,500	0.64
Total		4,340,000	0.63
South	?	183,500	1.12
North		972,500	1.09
Total		1,156,000	1.09
South	?	106,000	1.48
North		495,000	1.52
Total		601,000	1.51

No further work was done on the prospect until 1981. That year SMDC (now Cameco) entered into

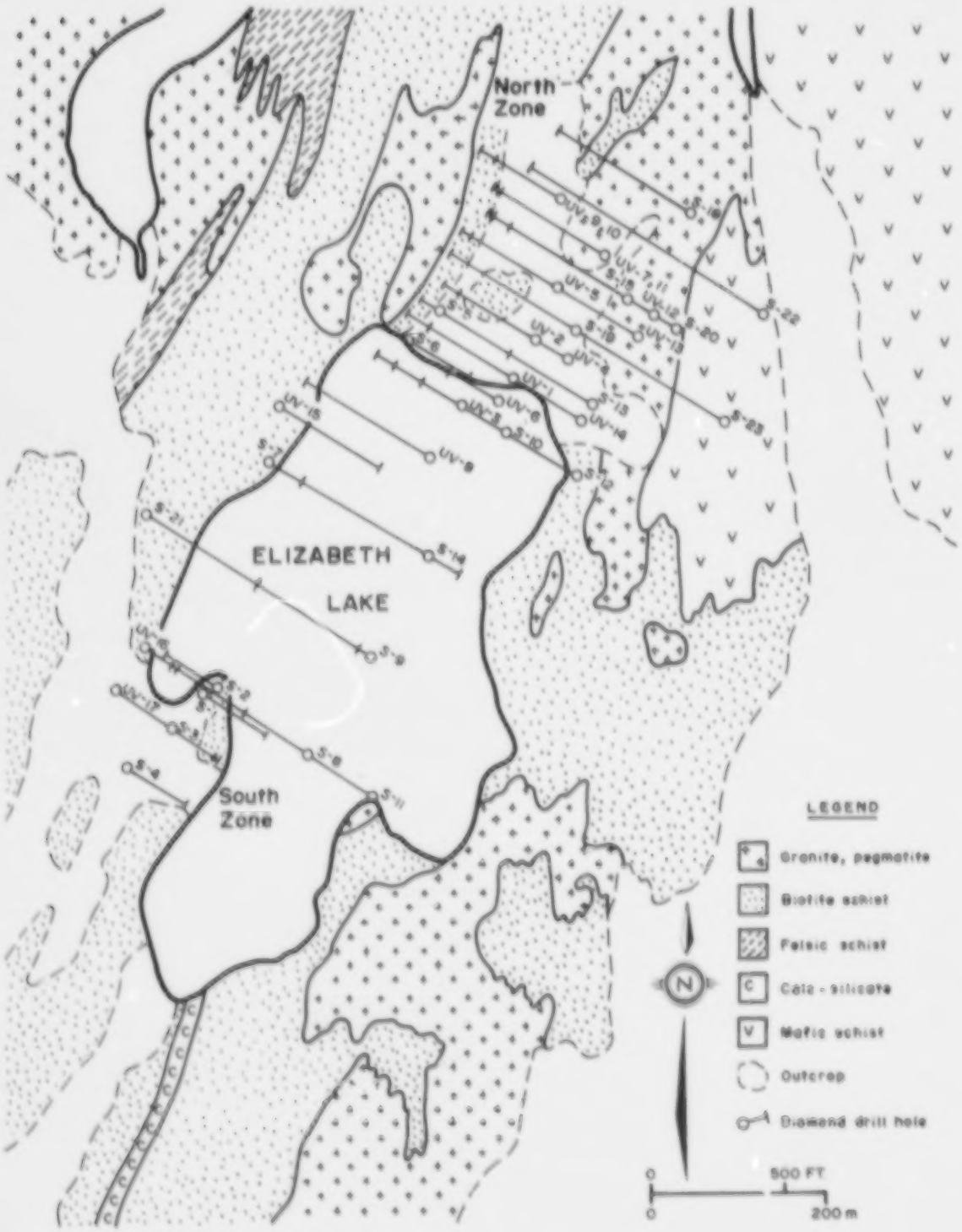


Figure 35. Geology and diamond drilling, Elizabeth Lake (compiled from SEM Assessment Files 73-P-06-0043, -0055, -0061).

a joint venture with Studer Mines. Studer Mines subsequently assigned its interest in the property to Benz Gold Resources. Later that year, Benz flew an airborne INPUT and magnetometer survey over the area and, in 1981, and again in 1983, carried out some limited ground geophysical surveys in the vicinity of the showing. In 1984, SMDC re-analyzed some selected drill core.

No further work was done until 1987. In December of that year, Ingot Exploration Ltd. completed ground VLF-EM and magnetometer surveys in the area of the deposit.

Geology and Mineralization: The Elizabeth Lake deposit occurs within northeast trending, steeply dipping (subvertical) biotite schists and gneisses of the La Ronge 'Horseshoe', in the southwestern part of the La Ronge Domain. The rocks have suffered at least two phases of folding deformation and have attained lower amphibolite metamorphic grade.

The hosting biotite schists (tuffs ?, sandstones ?) are variably sheared, silicified and sericitized and are intruded by sills and dykes of molybdenite-bearing aplites and pegmatites. A calc-silicate unit at the southern end of Elizabeth Lake may reflect wall rock alteration associated with the mineralization (Fig. 35).

The mineralization occurs over a length of about 625 m through Elizabeth Lake. It forms two principal lenses, approximately 365 m apart. These lenses are moderate to steep plunging; they parallel minor fold hinges in the immediate vicinity. The North Zone is about 330 m long, 2 to 22 m wide and extends to a vertical depth of more than 250 m. The South Zone is about 240 m long and extends to a depth of 150 m. It displays similar widths to the North Zone.

Mineralization mainly comprises pyrite and chalcopyrite with lesser amounts of pyrrhotite, sphalerite and magnetite. These minerals occur as disseminations within biotite and sericite grains, as podiform masses, and as conformable and cross-cutting veins. Chalcopyrite-rich sections occur where pyrite is least abundant. Sphalerite is concentrated in minor calc-silicate horizons in the biotite schists.

Precious metals were not routinely assayed. Gold values up to 0.12 oz. Au/ton across 0.4 m have been reported from the drilling. Silver values are apparently associated with higher copper values; grades of 0.20 to 0.35 oz. Ag/ton are typical.

References: Forsythe (1976), SEM Assessment Files 73-P-06-0043, -0055, -0056, -0061, -0063, -0077, -0086, -0090, -0091, -0092, -0093, SMI-0733

73-P-08-NE

Name: **Pitching Lake**

Location: Southwest end of Pitching Lake (part of the Churchill River system), approximately 85 km northeast of La Ronge (Location 4, Fig. 12)

History and Development: The earliest recorded exploration in the vicinity of Pitching Lake comprised trenching, probably prior to 1924, according to an undated report by E.L. Bruce. In 1928 Churchill Minerals Limited held a group of claims covering the showing. These claims were allowed to lapse and, in 1952, the main showing was staked again. The latter claims lapsed in 1953. D.R. Hooton, and others, staked the main occurrences in 1954. This was followed by a major staking rush in 1955.

Glen Uranium Mines Ltd. acquired control of 50 claims centered on the original discovery at Hunter Falls in 1955. In the following two years, the company conducted the first major exploration program on the showing. The work comprised trenching and sampling, airborne magnetometer and electromagnetic surveys, ground geophysical surveys, geochemical soil sampling, and 9929 m of diamond drilling in 53 holes. Test pits were dug on the original discovery (the 'A' Zone) at Hunter Falls and a further showing (the 'B' Zone), about 1.5 km north-northeast of the 'A' Zone. A 13 m deep vertical shaft was sunk at the southwest end of the 'A' Zone and a 72m long exploration adit was driven beneath the test pit on the 'B' Zone. The program outlined three mineralized zones. Estimated reserves for the 'A' Zone are reported to be about 100,000 tons grading approximately 2.6% Cu (Morris, 1962). Unfortunately, little information is available on this work. A forest fire in 1961 destroyed the core racks.

The property was optioned by the Rio Tinto Mining Company of Canada Ltd in 1957. The claims were allowed to lapse in 1958 and were restaked the same year by Laronex Mining and Exploration Co. Ltd. (later renamed Laronex Copper Mines Ltd.). During 1961-67, Laronex conducted ground magnetometer and electromagnetic surveys, geological mapping, trench sampling and 823 m (11 holes) of diamond drilling. Seven of the holes were drilled on the 'A' Zone, to confirm the earlier work. The claims were allowed to lapse in 1971.

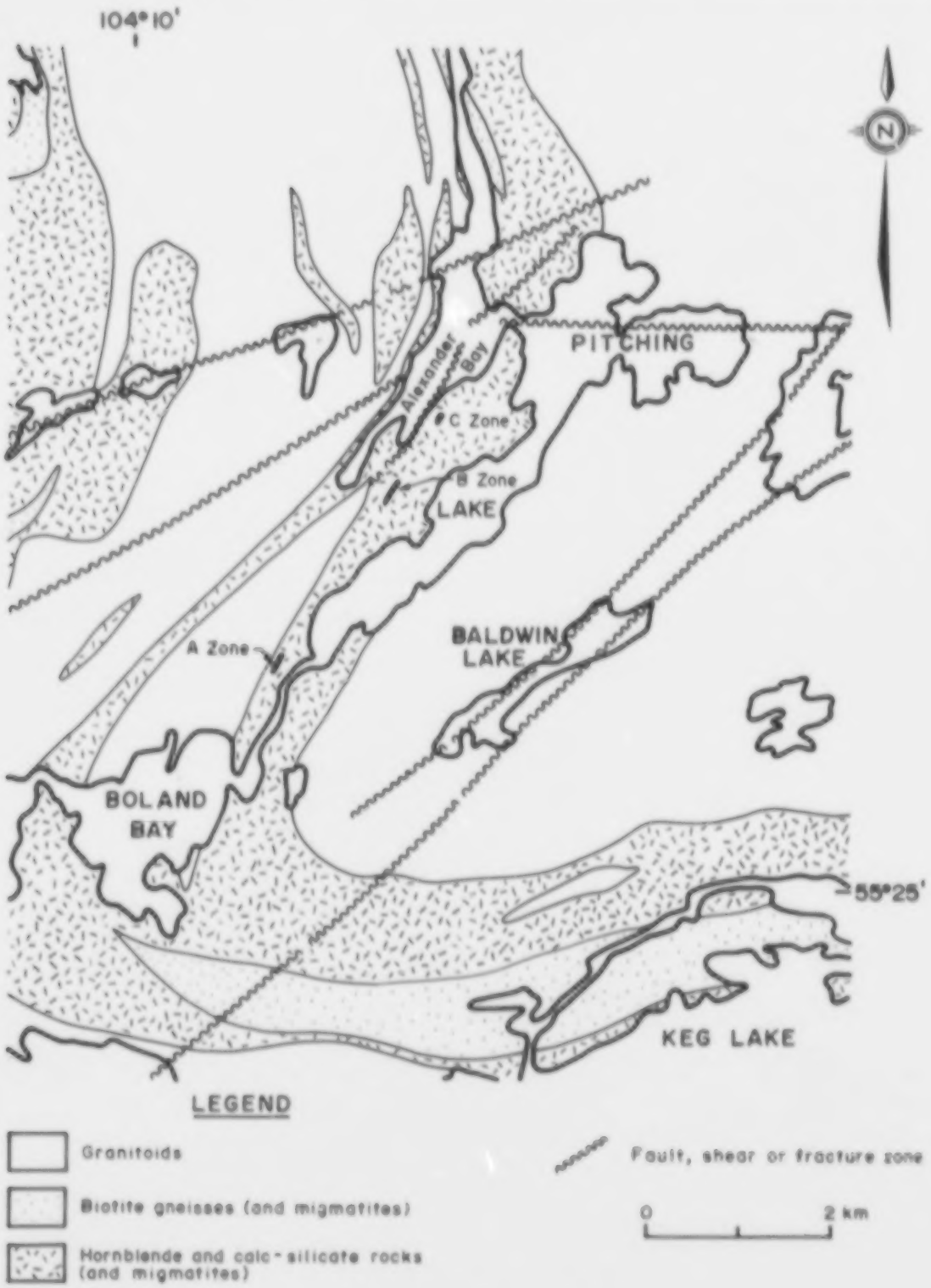


Figure 36. Geology of the Pitching Lake area, showing the location of the A, B and C zones (geology after Morris, 1962).

No further work is reported on the deposit until 1986 when Claude Resources Inc. conducted ground magnetometer and electromagnetic surveys in the area. Cogema Canada Ltd. reported geological mapping, prospecting, rock sampling and lithogeochemistry in the Pitching Lake area in 1987.

Geology and Mineralization: The mineralization occurs within volcanic-sedimentary rocks of the Keg-Sadler greenstone belt, which forms part of the "Wapassini Allochthon" of the Glennie Lake Domain.

The three zones of mineralization are hosted within northerly trending, east dipping 'hornblende-biotite gneiss' and 'hornblende-calc-silicate gneiss' that lie on the western limb of a major, northeasterly plunging, post-foliation synform (Fig. 36). The three zones coincide with extensive EM conductors.

The 'A' Zone comprises a small shoot of irregular shape that plunges south (?). Apparently, the zone extends from surface to a vertical depth of ±300 m. According to incomplete records, the zone is about 24 m long on surface, 120 m long at a depth of 36 m (with an average grade of 2.01% Cu over a width of 5.5 m) and 23 m long at a depth of 91 m (with an average grade of 2.24% Cu over a width of 4.0 m). From 120 to 150 m depth, the zone is 30 m long (with an average grade of 8.03% Cu over a width of 5.2 m). The zone dips east at 35 to 60 degrees, conforming to the dip of the enclosing rocks.

The sulphide mineralization varies from semi-massive (10-20% sulphides) to massive (>70% sulphides). Pyrite predominates with lesser pyrrhotite and chalcopyrite. Graphite has been reported in association with the sulphides. Higher copper values coincide with the alteration of the host amphibolitic rocks to chlorite schist.

The 'B' and 'C' Zones, 1.6 and 3.2 km north-northeast of the 'A' Zone respectively, similarly comprise narrow lenses and irregular pods of semi-massive to massive sulphide. In these zones, pyrrhotite predominates over pyrite. Chalcopyrite occurs only in trace amounts.

References: Beck (1959), Morris (1962), Sabina (1972), SEM Assessment Files 73-P-08-0014, -0015, -0024, -0028, -0029, -0030, -0031, -0032, -0037, -0038, SMI-0801

Class 2: Prospects

63-K-12-SW

Name: **Tanyss Lake N**

Location: 1,500 m NNE of Tanyss Lake (Location 7, Fig. 37)

History and Development: In 1952, the Tik claims, covering most of the ground between Taylor and Mystic Lakes, were staked for the Hudson Bay Mining and Smelting Company, Limited. During 1952-53, Hudson Bay carried out an EM survey over the claims and, in 1953-55, conducted follow-up diamond drilling, including the Tanyss Lake area. In 1965, the company conducted a further EM survey in the area. In 1971-72, Hudson Bay drilled three holes (totalling 357 m) to intersect a short, northwest trending EM anomaly. Drill hole Ner-1 returned up to 0.25% Cu over a width of 1.5 m. Drill hole Ner-2 returned up to 1.65% Cu and 0.05 oz/ton Ag over 0.4 m, including 2.25% Cu over a width of 0.21 m.

Subsequently, Hudson Bay performed ground magnetometer and EM surveys and drilled two further holes in 1987.

Geology and Mineralization: The showing is hosted within NNW trending Amisk Group volcanics that comprise mafic flows and subordinate quartz-feldspar porphyry. The volcanics are intruded by gabbro-diorite bodies. Mineralization comprises disseminated to semi-massive pyrite, pyrrhotite and chalcopyrite.

References: SEM Assessment Files 63-K-12-0021, -0054, -0073, 63-L-09-0263, -0338, SMI-0028

63-K-12-NW

Name: **Barney Lake 1 (Tik 99)**

Location: About 1,000 m west of the central part of Woodsworth Bay, Mystic Lake (Location 8, Fig. 37)

History and Development: In 1952, the Tik claims, covering most of the ground between Taylor and Mystic Lakes, were staked for the Hudson Bay Mining and Smelting Company, Limited. During 1952-53, Hudson Bay carried out an EM survey over the claims and, in 1953-55, conducted follow-up diamond drilling, including the Barney Lake area.

Drill holes 17 and 18 were drilled to test the

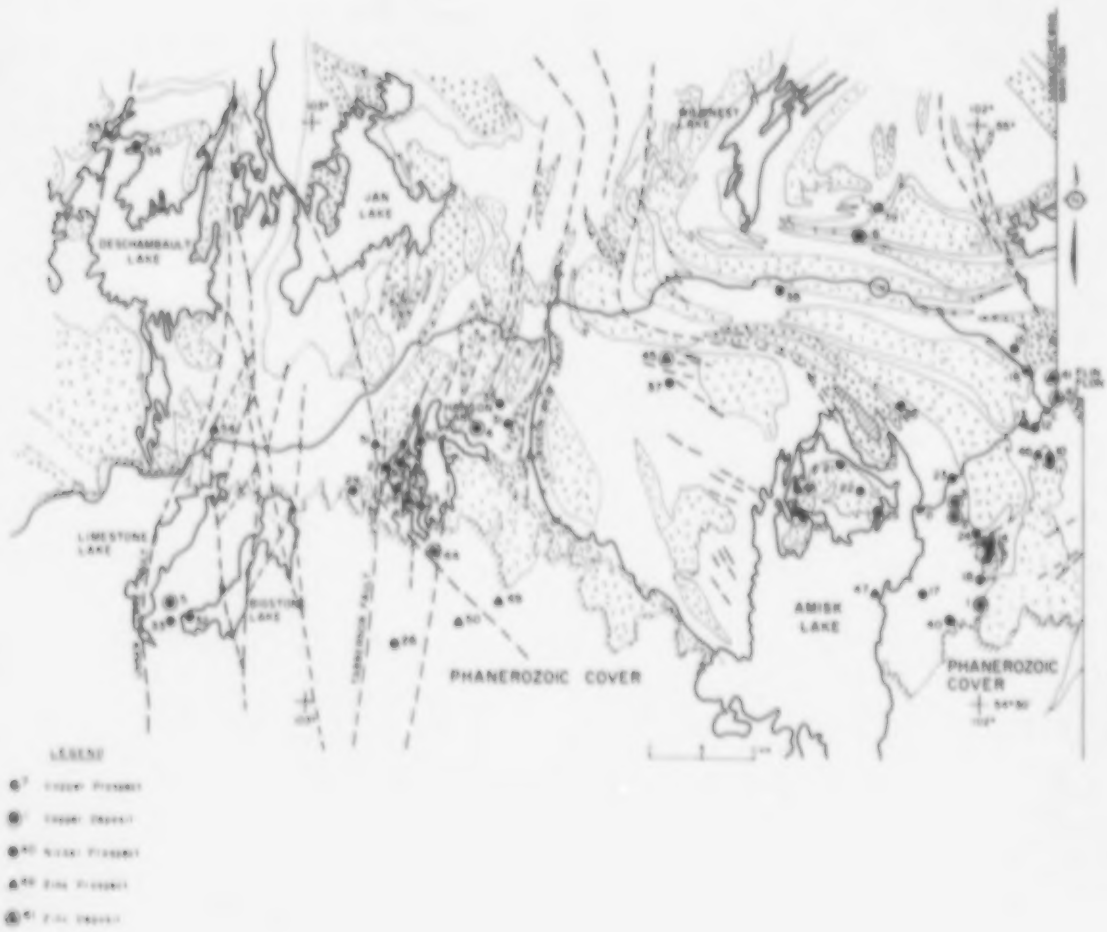


Figure 37. Mineral occurrences in the Hanson Lake-Flin Flon area (geology after Macdonald, 1981).
Legend: Random dashes, Undivided felsic intrusives; Crosses, Jan Lake Granite; Diagonal hatching, Ultramafic-mafic intrusives; Dotted, Biotitic gneisses; Small circled pattern, Psammitic sediments and other quartzofeldspathic rocks (includes the Missi Group); Blank, Mainly volcanic rocks and associated sediments and derived rocks (includes the Amisk Group).
Copper occurrences: 1. Coronation mine, 2. Birch Lake mine, 3. Flexar mine, 4. Ramsay, 5. Bigstone, 6. Clonadeh, 7. Tanyss Lake N, 8. Barney Lake 1 (Tik 99), 9. Barney Lake 2 (Tik 89), 10. Dion Lake N, 11. Dion Lake S, 12. Bomber Lake (Kettle 1), 13. Douglas Lake N, 14. Mystic Lake (Tik 69), 15. Hamell Lake N, 16. Hamell Lake S, 17. Cable Lake, 18. Tanyss Lake W (Tik 145), 19. J. Brain, 20. Missi Bay, 21. Can, 22. Cougal Lake, 23. Curved Lake, 24. Echo Lake (Alf 35), 25. Hot (Grant Bay), 26. Miskat Lake, 27. Ann, 28. Bertrum Bay, 29. Side Lake, 30. Wings (Bluebird), 31. Wakisew Lake, 32. Big, 33. Way 9 (Bigstone Lake), 34. Rat 64 (Deschambault Lake), 35. Sewap Lake, 36. Sam (Wolverine Lake), 37. Abbott Lake, 38. Johnson Lake, 39. Teejay (Cot, Vass Lake).
Nickel occurrences: 40. Table Lake.
Zinc occurrences: 41. Callinan mine, 42. Flin Flon mine, 43. Hanson Lake mine, 44. McIlvenna Bay, 45. Fon, 46. Rio SW, 47. Chamney Island, Amisk Lake, 48. Missi Island (Clare), 49. Balsam, 50. Grid B Showing (Hobbs Lake), 51. Jackpine Lake, 52. Young Peninsula, Hanson Lake, 53. Zinc Zone, 54. Rode, 55. Rat 16 (Deschambault Lake).

southern end of a 245 m long, northwest trending EM conductor. Drill hole 17 returned negligible values. Drill hole 18 intersected 1.42% Cu over a width of 0.58 m.

Geology and Mineralization: The showing is hosted within NNW trending Amisk Group volcanics that comprise mafic flows and subordinate quartz-feldspar porphyry. The volcanics are intruded by gabbro-diorite bodies. Mineralization comprises disseminated to semi-massive pyrite, pyrrhotite and chalcopyrite.

References: Beck (1959), SEM Assessment File 63-K-12-0021, -0068, -0096, -0097, -0099, SMI-0033

Name: **Barney Lake 2 (Tik 89)**

Location: About 900 m west of the northern part of Woodsworth Bay, Mystic Lake (Location 9, Fig. 37)

History and Development: In 1952, the Tik claims, covering most of the ground between Taylor and Mystic Lakes, were staked for the Hudson Bay Mining and Smelting Company, Limited. During 1952-53, Hudson Bay carried out an EM survey over the claims and, in 1953-55, conducted follow-up diamond drilling, including the Barney Lake area.

Drill hole 22 was drilled to test the northern end of a 245 m long, northwest trending EM conductor. The drill hole intersected 2.52% Cu over a width of 0.79 m, including 6.60% Cu over a width of 0.3 m.

Geology and Mineralization: The showing is hosted within NNW trending Amisk Group volcanics that comprise mafic flows and subordinate quartz-feldspar porphyry. The volcanics are intruded by gabbro-diorite bodies. Mineralization comprises disseminated to semi-massive pyrite, pyrrhotite and chalcopyrite.

References: Beck (1959), SEM Assessment File 63-K-12-0021, SMI-0033

Name: **Dion Lake N**

Location: About 275 m west of the north end of Dion Lake (Location 10, Fig. 37)

History and Development: The showing was first staked in 1920. The May claims, owned by May Dion, went to lease in 1926. A 9 m deep prospect shaft was sunk on the showing sometime prior to 1947.

No further work was reported until 1966, when Meridian Mining and Exploration Company Ltd. acquired the Luck claims over the Dion Lake area. In 1973, Flin Flon Mines Ltd. optioned the property, conducted an IP survey, drilled six holes (totalling 371 m) in the vicinity of the showing and carried out geological mapping and prospecting.

Five of the holes were drilled in the immediate vicinity of the prospect shaft; the sixth was drilled about 320 m northeast of the shaft. All the drill holes returned low copper values, except drill hole 1 that was drilled immediately beneath the shaft. Drill hole 1 returned a 1.7 m section of ±30 per cent sulphides that assayed 1.66% Cu, 0.51% Zn, 1.98 oz/ton Ag and 0.17 oz/ton Au.

The claims went to lease as ML 5168 in 1976. In 1986, the property including the showing was acquired by Vista Mines Inc. The latter company conducted ground magnetometer and VLF-EM surveys over an area that included the showing.

Geology and Mineralization: The showing is hosted within the marginal phase of the Boot Lake Granodiorite plutonic body, approximately 275 m west of the contact with Amisk Group volcanics. The granodiorite is intruded by northeasterly trending diabase dykes and younger, easterly trending dykes of Phantom Lake granite.

The Boot Lake Granodiorite is highly fractured; northeast trending dextral faults are conspicuous and probably belong to the Dion Lake fault system.

Mineralization is confined to the fractured granodiorite. Sulphide minerals are disseminated throughout, but are concentrated within short, irregular and random fractures and quartz veinlets. Chalcopyrite is predominant; pyrite, pyrrhotite, sphalerite, bornite and native copper are subordinate. Scheelite has been reported from the showing.

The mineralized granodiorite is commonly altered to a green-grey, fine grained rock due to the sericitization (?) of plagioclase feldspar.

References: Beck (1959), Byers et al. (1965), SEM Assessment Files 63-K-12-0062, -0067, -0076, -0086, SMI-0025

Name: **Dion Lake S**

Location: About 100 m west of the south end of

Dion Lake (Location 11, Fig. 37)

History and Development: During 1943-46,C.G. McMillan trenched and sampled a copper showing on the AL No. 1 claim. Assays returned 1.5 to 2.5% Cu. In 1962, the Keevil Mining Group Ltd. conducted an EM and resistivity survey over the area. In 1966, Meridian Mining and Exploration Company Ltd. acquired the Luck claims covering the Dion Lake area. In 1966-67, the company performed an EM survey and, in 1968, drilled four holes (totalling 243 m) in the vicinity of the showing.

Drill hole 1, drilled beneath the trenched mineralization, returned 1.41% Cu, 0.21 oz/ton Ag and 0.01 oz/ton Au over 3.7 m. Drill hole 5, drilled to test the postulated easterly extension of the mineralization in drill hole 1, returned 1.05% Cu over 0.67 m. The other holes encountered negligible results.

Byers et al. (1965) report that trench samples yielded 0.70 to 1.11% Cu.

In 1973, Flin Flon Mines Ltd. optioned the Luck claims from Meridian. The claims went to lease as ML 5168 in 1976. In 1986, the property including the showing was acquired by Vista Mines Inc. The latter company conducted ground magnetometer and VLF-EM surveys over an area that included the showing.

Geology and Mineralization: The showing is hosted within a faulted and fractured sliver of Amisk Group volcanics that lies between the Phantom Lake Granite and Boot Lake Granodiorite intrusive bodies, immediately to the southeast and northwest respectively. The regional, northeast trending Dion Lake fault cuts through the volcanics in the immediate vicinity of the showing.

Mineralization is formed by lenses and veinlets of quartz within the fractured basaltic rocks. The quartz carries pyrite and chalcopyrite. Rare scheelite has also been reported.

References: Byers et al. (1965), SEM Assessment Files 63-K-12-0027, -0031, -0062, -0067, -0076, -0086, SMI-0027

Name: **Bomber Lake (Kettle 1)**

Location: Immediately southwest of Bomber Lake, about 0.75 km east of the north end of Douglas Lake (Location 12, Fig. 37)

History and Development: The earliest reported work in the vicinity of Bomber Lake was carried out by the Flin Flon Gold Mining Syndicate, Limited. The latter company conducted trenching (and drilling ?) on 'Vein 3' prior to 1936.

In 1968, prospectors Krassilowsky, Reid and McDougall trenched and sampled the showing. That same year, Torwest Resources Ltd. optioned the property and conducted further trenching and stripping and drilled three packsack holes (totalling 68 m).

A sample from trench E returned 1.30% Cu, 0.065 oz/ton Au and 1.65 oz/ton Ag over a width of 2.0 m.

The drilling encountered low grade copper-gold-silver mineralization. The best intersections were in drill holes 1 and 2. Drill hole 1, drilled under trench E, returned 0.50% Cu, 0.04 oz/ton Au and 0.70 oz/ton Ag over 1.5 m. Drill hole 2 , drilled 30 m south of 1, returned 0.80% Cu, 0.12 oz/ton Au and 1.25 oz/ton Ag over 0.9 m.

It is reported that the showing was high-graded in 1968. A total of 27.93 tons, grading 12.4% Cu, 0.45 oz/ton Au and 2.42 oz/ton Ag, were shipped to the HBM & S smelter in Flin Flon.

No further work was reported on the occurrence until 1980, when Hudson Bay Exploration and Development (HBED) carried out a ground EM survey over the area. In 1981-82 HBED drilled 11 holes (totalling 814 m) in the vicinity of the Bomber Lake showing.

Geology and Mineralization: Several pits expose a northwest trending mineralized shear zone within Amisk Group basaltic flows. Lenticular quartz veins, up to 0.6 m wide, within the shear zone carry pyrite, chalcopyrite and subordinate sphalerite.

References: Byers et al. (1965), Pearson (1979), SEM Assessment File 63-K-12-0059, -0121, 0124, -0126, SMI-0038

Name: **Douglas Lake N**

Location: About 200 m north of the northwest end of Douglas Lake (Location 13, Fig. 37)

History and Development: In 1967, Meridian Mining and Exploration carried out an EM survey in the area; nothing of note was reported. In 1972, W.J. Reid dug four pits on the Kay 6 claim and the Jet 7 and 9 claims. Interesting copper values were reported from Pit 1 on the Kay 6 claim and Pit 3 on

the Jet 9 claim.

Pit 1 assayed 0.39% Cu, 0.04 oz/ton Ag and 0.02 oz/ton Au over 2.1 m. Pit 3 assayed 0.62% Cu, 0.08 oz/ton Ag and 0.02 oz/ton Au over 1.2 m.

Geology and Mineralization: The pits occur within variably sheared, northwest trending Amisk Group basaltic volcanics.

References: SEM Assessment Files 63-K-12-0030, -0043, -0063, -0074, SMI-0040

Name: **Mystic Lake (Tik 69)**

Location: About 250 m west of the north end of Woodsworth Bay, Mystic Lake (Location 14, Fig. 37)

History and Development: In 1952, the Tik claims, covering most of the ground between Taylor and Mystic Lakes, were staked for the Hudson Bay Mining and Smelting Company, Limited. During 1952-53, Hudson Bay carried out an EM survey over the claims and, in 1953-55, conducted follow-up diamond drilling, including the Mystic Lake area.

Drill holes 6 and 10, totalling 335 m, were drilled on a 230 m long, northwest trending EM conductor. Ddh 6 intersected 0.17% Cu over 8.0 m. Ddh 10 returned 0.22% Cu over 0.85 m.

In 1971-72, Hudson Bay carried out a ground EM survey and drilled six more holes in the area.

No further work was reported in the area until 1979, when Flin Flon Mines performed magnetometer, EM and soil geochemical surveys and drilled one hole (168.5 m) east of the showing.

Geology and Mineralization: The showing occurs within northerly trending Amisk Group volcanics that mainly comprise mafic flows. The latter are intruded by bodies of diorite-gabbro.

Mineralization is formed by 0.6 to 1.5 m wide bands of massive pyrite-pyrrhotite. Chalcopyrite and sphalerite are subordinate.

References: Beck (1959), SEM Assessment File 63-K-12-0021, -0068, -0096, -0097, 0099, SMI-0036

63-K-13-SW

Name: **Hamell Lake N**

Location: Middle of Hamell Lake (Location 15, Fig. 37)

History and Development: In 1940 Hudson Bay carried out geological mapping and drilled three holes (704 m) beneath Hamell Lake. Hole 11 intersected 0.50% Cu over a width of 1.4 m.

Cominco conducted ground magnetometer, EM and IP surveys in the area in 1971-72.

Geology and Mineralization: The drill holes intersected mica schists and gneisses derived from Amisk Group volcanics and porphyries.

References: SEM Assessment Files 63-K-13-0003, -0013, -0030, -0032, -0051, SMI-0075

Name: **Hamell Lake S**

Location: Approximately 250 m south of the southern tip of Hamell Lake (Location 16, Fig. 37).

History and Development: The showing was first covered by the Sulphide No. 4 claim by O. Hanson in 1962. During 1962-64, trenching and diamond drilling (27 m) were carried out. A grab sample returned 6.5% Cu, trace Zn, 1.84 oz/ton Ag and 0.12 oz/ton Au.

In 1964-65 Hudson Bay Exploration and Development performed ground magnetometer and EM surveys and drilled one hole (totalling 94 m) in the vicinity of the showing. In 1965 the property was covered by the Roy claims. During 1965-69, R.J. Johnston carried out trenching and drilled two holes (totalling 24 m) in the area immediately south of the showing. Grab samples returned 2.56 to 4.96% Cu, 0.02% Zn, 0.09 to 1.63 oz/ton Ag and 0.01 to 0.04 oz/ton Au. Drill hole 1 (Roy claim 4) encountered several narrow mineralized sections. These returned 0.85% Cu, 0.01 oz/ton Au, nil Ag and 0.17% MoS_2 over 0.9 m, 1.03% Cu, 0.03 oz/ton Au and trace Ag over 0.6 m and 1.23% Cu and traces of Au and Ag over 0.6 m.

Cominco conducted ground magnetometer, EM and IP surveys in the area in 1971-72. In 1987, Eldor Resources Limited performed ground magnetometer, HLEM and VLF-EM surveys in an area immediately east of the occurrence.

Geology and Mineralization: The area of the showing is underlain by northwest trending Amisk Group volcanics intruded by granodiorite to the southwest and gabbro to the northeast. A 4.3 m wide, northwest trending shear zone within granodiorite is mineralized with quartz stringers carrying pyrite and chalcopyrite and subordinate molybdenite and pyrrhotite.

References: SEM Assessment Files 63-K-13-0009, -0011, -0014, -0032, -0054, SMI-0073

63-L-09-SE

Name: **Cable Lake (Evan, Just and Mix)**

Location: About 350 m northwest of the mouth of the creek on the north shore of Cable Lake (Location 17, Fig. 37)

History and Development: Cyprus Exploration Corporation, Limited staked the Evan, Just and Mix claims in 1954. That year the company carried out a large EM survey and drilled 12 holes (totalling 933 m). Three holes (5, 9 and 10) were drilled on an EM anomaly about 350 m northwest of the mouth of the creek on the north shore of Cable Lake.

Drill hole 5 returned 0.16% Cu over 8.7 m. Drill hole 9 returned 0.11% Cu over 13.7 m. The claims were allowed to lapse and A.L. Parres restaked the Mix claims in 1958.

In 1968 Hudson Bay drilled five other holes in the Cable Lake area with negligible results.

Geology and Mineralization: The area is underlain by northerly trending Amisk Group basaltic volcanics that are intruded by granitic, dioritic and gabbroic bodies. Mineralization comprises massive pyrite and pyrrhotite with subordinate chalcopyrite.

References: Beck (1959), SEM Assessment Files 63-L-09-0024, -0027, -0081, -0111, -0163, -0291, -0311, -0334, -0341, -0350, SMI-0124

Name: **Tanyss Lake W (Tik 145)**

Location: West shore of Tanyss Lake (Location 18, Fig. 37)

History and Development: In 1952, the Tik claims, covering most of the ground between Taylor and Mystic Lakes, were staked for the Hudson Bay Mining and Smelting Company, Limited. During 1952-53, Hudson Bay carried out an EM survey over the claims and, in 1953-55, conducted follow-up diamond drilling, including the Tanyss Lake area.

Fifteen holes were drilled to test a NNW trending conductor beneath Tanyss Lake, close to the western shore. Several of the holes intersected narrow widths of copper mineralization. The best reported intersection returned 0.78% Cu, 0.09 oz/ton Ag and 0.003 oz/ton Au over 2.26m in drill hole 110.

Geology and Mineralization: The showing occurs within northerly trending basaltic-andesitic volcanics of the Amisk Group. Mineralization comprises disseminated to semi-massive pyrite, pyrrhotite and chalcopyrite.

Remarks: Several other narrow copper intersections were reported in the Tanyss-Brutus Lakes area, e.g. ddh 128 and 129 returned 4.5% Cu over 0.06m and 1.7% Cu over 0.06m respectively. These intersections may represent copper stringer zones.

References: Beck (1959), Byers et al. (1965), SEM Assessment Files 63-K-12-0021, -0022, -0023, -0054, 63-L-09-0168, -0263, -0338, SMI-0125

63-L-09-NW

Name: **J. Brain**

Location: About 425 m west of the northwest end of Missi Bay, Missi Island, Amisk Lake (Location 19, Fig. 37)

History and Development: In 1968 prospector Joe Brain trenched and sampled a copper occurrence on the Big claims, approximately midway between Missi Bay and Hannay Bay, Missi Island. In 1971 Brain drilled four holes (JMB-1 to -4; totalling 313 m) on the showing. The drilling tested the showing over a strike length of 120 m. The following summarizes the results of the drilling:

Ddh	Width (m)	Cu (%)	MoS_2 (%)	Ag (oz/ton)	Au (oz/ton)
1	3.4	0.21			
2	0.4	1.70	-	0.42	0.04
3	7.6	2.60	0.11	0.09	Tr
inc	4.4	3.02	0.10	0.11	Tr

In 1971 Hudson Bay optioned the property and, during 1972-73, conducted ground magnetometer and EM surveys and drilled 15 holes (totalling 1,592 m) on the property. Four of these holes (Missi 1 to 4; totalling 440 m) were drilled in the

immediate vicinity of the showing. The following summarizes the results of the drilling:

Ddh	Width (m)	Cu (%)	MoS_2 (%)	Ag (oz/ton)	Au (oz/ton)
1	1.5	0.40		-	-
	1.5	0.49		-	-
	0.7	0.95		-	-
2	4.8	0.25		-	-
3	2.1	0.35		-	-
4	1.8	0.65		-	-

In 1984, Hudson Bay carried out ground EM and magnetometer surveys in the vicinity of the showing. Arctic Gold Corporation/SMDC (now Cameco) mapped, sampled and conducted a biogeochemical survey in the area in 1986.

Geology and Mineralization: The area is underlain by an intrusive-extrusive complex of felsic porphyritic rocks (the Missi Island Vent Complex). Mineralization is formed by sheared, carbonatized and silicified quartz-feldspar porphyry containing disseminations and veinlets of pyrite, chalcopyrite and rare molybdenite.

References: Gracie (1972), SEM Assessment Files 63-L-09-0107, -0167, -0186, -0190, -0205, -0245, -0253, -0289, -0293, -0294, SMI-0134, -0135, -0136

Name: **Missi Bay**

Location: Approximately 200 m west of the mouth of Missi Bay, Missi Island, Amisk Lake (Location 20, Fig. 37)

History and Development: The showing was originally staked as the Ace claims by R. Beeler, prior to 1930. In 1956, J. Brain and O. Hanson staked the Jo claims over the area and carried out trenching and pitting. In 1962, Keevil Mining carried out a ground magnetometer survey over the area.

In 1971, Flin Flon Mines Ltd. optioned the M1 and Big 15-16 claims and ML 5065 from J. Brain and performed an IP survey. During 1972-73, Missi Island Mines Ltd. carried out soil geochemical and ground EM and IP surveys and drilled 12 holes (totalling 1,109 m) to the southwest of Missi Bay. Several of the holes encountered weak copper and molybdenum mineralization. The only significant mineralization was returned from ddh M 9 which intersected 0.18% Cu over a width of 7.3 m.

Geology and Mineralization: The area is underlain by an intrusive-extrusive complex of felsic porphyritic rocks (the Missi Island Vent Complex). Mineralization is formed by sheared, carbonatized and silicified quartz-feldspar porphyry containing disseminations and veinlets of pyrite, chalcopyrite and rare molybdenite.

References: SEM Assessment File 63-L-09-0164, -0204, -0207, SMI-0171

63-L-09-NE

Name: **Can**

Location: Northeast part of Missi Island, Amisk Lake, about 700 m southwest of the North Channel, Amisk Lake (Location 21, Fig. 37)

History and Development: The Can group of claims were staked during 1951-56. During this period W.D. Neeland and others carried out trenching, prospecting, an EM survey and drilled 16(?) holes (totalling 996 m). Drill hole 56-5 intersected a 2.4 m wide section of massive pyrite-pyrrhotite-chalcopyrite-magnetite that returned an assay of 1.56% Cu and trace Au over 0.5 m. A sample of silicified wall rock returned 0.81% Cu over 3.7 m.

In 1956, Cosmos U.S. Mining Corporation conducted a ground EM survey over the area. No further work was reported until 1971-72, when J.M. Jacobson performed trenching and a ground magnetometer survey over the showing. In 1983-84, SMDC (now Cameco) carried out geological mapping and sampling and ground magnetometer and IP surveys in the general vicinity of the showing.

Geology and Mineralization: The area is underlain by easterly trending mafic volcanics of the Amisk Group that are intruded by felsic porphyry and granodiorite of the 'Missi Island Vent Complex'. Mineralization occurs within highly fractured porphyry and flow rocks as quartz and sulphide veinlets.

References: SEM Assessment Files 63-L-09-0004, -0028, -0162, -0177, -0289, -0292, SMI-0122

Name: **Cougal Lake**

Location: Northeast shore of Cougal Lake, a small lake on the east side of Missi Island, Amisk Lake (Location 22, Fig. 37)

History and Development: The Cougal group of claims was staked for Noranda Mines, Limited in 1948. During 1948-50 the company carried out

trenching and some drilling, mainly on the northeast side of the lake. From 1949-1957, V.D. Colcleugh conducted geological mapping, trenching and sampling and drilled 21 holes in the general area. Some of the better drill results are as follows:

Ddh	Width (m)	Cu (%)	Zn (%)	Ag (oz/ton)	Au (oz/ton)
2	1.5	1.10		Tr	0.01
3	1.0	1.18	Tr	0.74	0.02
6	1.1	0.68		Tr	0.01
8	1.4	1.06		2.34	0.06
14	3.0	1.94		0.29	0.01

In 1967, the area was covered by the Ore claims. That year, A.L. Parres drilled five holes (totalling 1,061 m). The best mineralization was encountered in drill hole 3, on Ore claim 5, which intersected 1.35% Cu, 0.58 oz/ton Ag and 0.06 oz/ton Au over 0.70 m.

The area was included in a reconnaissance geological mapping program conducted by SMDC (now Cameco) in 1977 and in an airborne EM and magnetometer survey by SMDC in 1979. In 1983, Hudson Bay carried out a ground magnetometer and EM survey in the area and drilled one hole north of the showing.

Geology and Mineralization: The area is underlain by highly fractured Amisk Group mafic volcanics that are intruded by innumerable dykes and sills of aplite, porphyry, diorite, gabbro and pyroxenite (of the 'Missi Island Vent Complex').

Mineralization comprises disseminations, fracture fillings and veinlets of quartz and sulphides within the carbonatized and silicified host rocks. Sulphides include pyrite, pyrrhotite, chalcopyrite and, more rarely, molybdenite and sphalerite.

References: Beck (1959), Byers and Dahlstrom (1954), SEM Assessment Files 63-L-09-0006, -0125, -0126, -0246, -0271, -0302, SMI-0116

Name: **Curved Lake**

Location: South of the southern end of Curved Lake, about 100 m north of the highway and approximately 450 m NNW of Birch Lake (Location 23, Fig. 37)

History and Development: In 1964 International Minerals and Chemical Corporation (Canada) Limited carried out geological mapping, trenching, ground magnetometer and IP surveys and drilled four holes in the area of the showing. Trench sampling returned up to 1.09% Cu, 0.78% Zn and 0.48 oz/ton Ag over a width of 2.1 m.

The area of the showing was included in a regional ground EM and magnetometer survey by Hudson Bay in 1982.

Geology and Mineralization: The area is underlain by northerly trending Amisk Group mafic volcanics. These are intruded by ultramafic rocks, diorite-gabbro and granitoid bodies. Mineralization comprises chalcopyrite and molybdenite in quartz veins and stringers within mafic volcanics.

References: SEM Assessment Files 63-L-09-0064, -0124, -0131, -0158, -0202, -0263, SMI-0149

Name: **Echo Lake (Alf 35)**

Location: About 500 m south of Echo Lake and 1.3 km east of the north end of Ruth Lake (Location 24, Fig. 37)

History and Development: In 1952, the Tik claims, covering most of the ground between Taylor and Mystic Lakes, were staked for the Hudson Bay Mining and Smelting Company, Limited. During 1952-53, Hudson Bay carried out an EM survey over the claims and, in 1953-55, conducted follow-up diamond drilling, including the Echo Lake area (two holes, totalling 224 m). Nothing of significance was reported.

In 1963-64, Hudson Bay drilled 20 (?) holes (totalling 4,208 m) on the Alf claim 35. All of the holes intersected interesting copper mineralization, as follows:

Ddh	Width (m)	Cu (%)	Zn (%)	Ag (oz/ton)	Au (oz/ton)
4	0.67	2.96		1.00	0.02
	0.30	8.97		6.12	0.02
5	0.85	1.10		0.22	
6	3.05	0.52			
7	1.13	15.55		4.76	0.05
	0.46	8.54		3.85	0.09
8	1.04	1.03		0.17	0.01
9	0.33	1.12		0.38	
10	4.78	6.11		2.52	0.02
11	13.40	3.77	0.40	3.64	0.02
12	9.45	0.52		0.31	0.01
13	1.59	0.39		0.34	
14	2.65	0.47		0.33	
15	0.79	2.24	0.30	0.73	0.01
16	0.49	1.03		0.41	
17	2.92	1.07		0.47	0.01

18	1.55	4.46		2.22	0.03
19	1.62	2.26	0.26	1.57	0.02
20	0.61	1.80	0.10	0.81	0.01
21	0.61	0.88	2.55	0.35	0.02
24	0.61	0.78	2.50	0.62	0.07
28	6.46	3.82	0.20	2.33	0.02
38	1.06	2.02	Tr	1.11	0.02

An additional hole was drilled in 1976. In 1983-84, Hudson Bay carried out ground EM and magnetometer surveys over the showing and a borehole PEM survey on the 1976 drill hole. Hudson Bay drilled one further hole on the occurrence in 1988.

Geology and Mineralization: The area is underlain by northerly trending Amisk group mafic volcanics that are intruded by diorite-gabbro bodies. Mineralization extends over at least 120 m length and comprises disseminated to massive pyrite and chalcopyrite with lesser arsenopyrite, pyrrhotite and sphalerite.

References: SEM Assessment Files 63-L-09-0021, -0109, -0220, -0280, -0298, -0331, SMI-0142

Name: **Hot (Grant Bay)**

Location: About 400 m west of the east shore of Missi Island, approximately 350 m south of the entrance to Grant Bay, Amisk Lake (Location 25, Fig. 37)

History and Development: In 1948 the Hot group of claims was staked for R.H. Moody. Several copper showings were trenched and during 1949-59 Moody drilled several holes (14?). D.R. MacDougall also trenched in the vicinity of the showing in1950. Ownership was transferred to E.T. Hartnett in 1952. In 1954, Cyprus Exploration Corporation carried out an EM survey with negative results. No further work was reported until 1973, when the showing was covered by the Molly 6 claim. A.L. Parres drilled the showing that year.

The drilling intersected minor sulphide mineralization; assays returned trace to 3.02% Cu, trace to 0.64 oz/ton Au and trace to 4.50 oz/ton Ag over widths of 0.3 to 1.8 m. The best copper intersection was encountered in drill hole Molly 1, i.e. 3.02% Cu, 0.64 oz/ton Au and 4.50 oz/ton Ag over a width of 0.3 m.

In 1977, SMDC (now Cameco) conducted reconnaissance geological mapping over an area including the occurrence. A more detailed mapping program, overburden stripping, and geochemical sampling (rock and soil) was carried out in the same area by SMDC in 1987.

Geology and Mineralization: The area is underlain by highly fractured porphyritic quartz diorite, hornblende porphyry (belonging to the 'Missi Island Vent Complex') and Amisk Group andesitic rocks. Mineralization comprises pyrite and chalcopyrite as disseminations within fractured rocks and quartz and carbonate veinlets and veins.

References: Beck (1959), Byers and Dahlstrom (1954), SEM Assessment Files 63-L-09-0013, -0060, -0095, -0214, -0222, -0334, -0341, SMI-0114

63-L-10-SW

Name: **Miskat Lake**

Location: West shore of Miskat Lake, approximately 15 km south of Hanson lake (Location 26, Fig. 37)

History and Development: Exploration in the area of the showing was performed by SMDC in 1977. Airborne EM (INPUT) and magnetometer surveys were followed up with ground magnetometer and EM surveys in 1978 and two drill holes (8-1B and 8-2, totalling 314 m) in 1979.

In 1980-81, SMDC conducted additional ground EM and gravity surveys and drilled 16 holes (8-3 to 8-18, totalling 3,851m) in the immediate area. The following summarizes the results of the drilling:

Ddh	Width (m)	Cu (%)	Zn (%)	Ag (ppm)	Au (ppm)
1B	21.0	0.5	0.4	8.7	0.1
2	3.5	0.5	0.2	8.3	0.1
3	8.8	0.5	0.3	4.9	0.1
4	9.7	0.9	0.1	4.4	0.2
5	1.5	0.5	0.2	10.7	Tr
10	16.9	0.4	0.9	8.1	Tr
11	34.7	0.5	0.4	10.0	0.4
16	29.4	0.5	0.1	9.6	0.2

No further work was reported until 1986, when SMDC performed a test helicopter EM survey over the showing area.

Geology and Mineralization: The occurrence is hosted within Aphebian (?) felsic volcanic rocks of the Hanson Lake Block that are overlain by ±25 m of Paleozoic dolomite and sandstone.

The felsic flows and fragmental rocks overlie intermediate volcanics and are intruded by diorite dykes and sills. Diamond drilling identified major

northerly trending faulting as well as easterly trending faulting.

Mineralization comprises semi-massive to massive pyrite and pyrrhotite with subordinate chalcopyrite and sphalerite. Biotite enrichment, chloritization and development of anthophyllite are associated with the mineralization.

The drilling indicates that the zone trends north-northwest, dips steeply to the east and extends over a length of about 250 m. Apparently, the zone is faulted off at a vertical depth of 250 m.

References: SEM Assessment Files 63-L-0007, -0008, 63-L-02-0004, 63-L-07-0003, 63-L-10-0076, -0079, -0080, -0081, -0085, -0086, -0091, -0107, SMI-2134

63-L-10-NW

Name: **Ann**

Location: About 300 m west of Bertrum Bay, Hanson Lake (Location 27, Fig. 37)

History and Development: In 1967, Meridien Mining and Exploration Co. trenched and sampled the showing on Ann claim 18. Two samples from one of the trenches returned 0.4% Cu, 0.1% Ni and 0.04 oz/ton Au over 1.5 m and 0.5% Cu, 0.15% Ni and 0.01 oz/ton Au over 1.5 m respectively.

The following year several holes were drilled to test magnetic anomalies in the area; results were disappointing.

In 1979, SMDC drilled at least one hole in the vicinity of the showing during a 14-hole (1,294 m) drill program. Airborne INPUT and magnetometer surveys were flown over the area in 1983 for both SMDC and Granges Exploration AB. In 1986, SMDC conducted ground magnetometer, EM and gravity surveys and drilled 12 holes in the general area of the showing.

Geology and Mineralization: The showing comprises an amphibolite (diorite ?, andesite ?) skarn that contains disseminated chalcopyrite over an area of about 360 m by 60 m.

References: SEM Assessment Files 63-L-09-0103, 63-L-10-0052, -0079, -0091, -0092, -0102, -0106, SMI-0200

Name: **Bertrum Bay**

Location: South end of Bertrum Bay, Hanson Lake (Location 28, Fig. 37)

History and Development: During 1952-54 Hudson Bay acquired control of the block of Han claims, carried out a ground EM survey and drilled 21 holes in the area. Nine of these holes (9-11, 13, 15, 18-21; totalling 2,157 m) were drilled to test an EM anomaly underlying Bertrum Bay. In 1967, Western Nuclear Mines drilled holes K-1, -2, -6, and -7 on a 600 m long EM conductor that extended south of Bertrum Bay. Some of the drill results are as follows:

Ddh	Width (m)	Cu (%)	Zn (%)	Ag (oz/ton)	Au (oz/ton)
15	1.5	1.24	2.00	0.63	0.01
	1.0	4.30	Tr	1.00	0.01
	1.3	0.96	0.30	0.37	0.01
	1.3	2.60	0.30	0.49	Tr
	2.3	-	1.40	-	-
K1	0.5	1.30	1.05	0.64	0.02
	0.4	2.79	Nil	0.62	0.02
	0.4	2.40	0.77	1.40	0.02
K7	0.9	0.97	1.03	0.22	Tr
	0.8	3.15	2.00	0.90	Nil
	1.0			1.67	
	1.1			1.25	

No further work was reported on the showing until 1983, when SMDC conducted prospecting, geological mapping and sampling in the general area. Both SMDC and Granges Exploration AB performed airborne INPUT and magnetometer surveys in the area in 1983. During 1985-86, SMDC carried out ground EM and magnetometer surveys and drilled 23 holes in and around the area of the showing.

Geology and Mineralization: The showing is hosted within east facing (?), northerly trending dacitic volcanics that are intruded by quartz-feldspar porphyry.

Diamond drilling tested the mineralization over a strike length of about 500 m and to a depth of 200 to 250 m. The mineralization occurs in a series of lenses (possibly footwall stringer zones - author) within a zone of weak shearing approximately 120 m wide.

Mineralization is formed by disseminated to massive pyrite and pyrrhotite with lesser sphalerite, chalcopyrite and arsenopyrite.

References: Beck (1959), Byers (1957), SEM Assessment Files 63-L-10-0005, -0019, -0029, -0037, -0061, -0087, -0090, -0091, -0095, -0102, -0103, -0106, SMI-0187

Name: **Slice Lake**

Location: North end of Slice Lake, 3 km west of Hanson Lake (Location 29, Fig. 37)

History and Development: The showing was discovered in 1954 by Cyprus Exploration Corporation Limited. That year, the company conducted trenching, an EM survey and drilled three holes (323 m) on the Gab claims. The results of the drilling were as follows:

Ddh	Width (m)	Cu (%)
1	21.3	0.13
2	4.3	0.07
3	2.0	0.19

In 1954-57, Parrex Mining Syndicate carried out geological mapping, trenching, ground magnetometer and EM surveys, and drilled eight holes in the general area. Results were negligible.

The general area of the showing was covered by airborne magnetometer and EM surveys in 1963-64 (Selco Explorations Co. Ltd.), 1977 (SMDC) and 1983 (SMDC). In 1983-84, SMDC carried out prospecting, geological mapping and sampling (soil and rock) in the vicinity of the showing.

Geology and Mineralization: The drilling tested a northerly trending EM conductor over a length of 400 m. Mineralization occurs within a variably sheared basic tuff that is intruded by narrow sills of diorite.

Mineralization is formed by disseminations and stringers of pyrite, pyrrhotite and chalcopyrite.

References: Beck (1959), Byers (1957), SEM Assessment Files 63-L-10-0002, -0003, -0076, -0087, -0091, -0095, 63-L-11-0011, SMI-0184

Name: **Wings (Bluebird)**

Location: North end of the long island in Bertrum Bay, Hanson Lake (Location 30, Fig. 37)

History and Development: The showing was initially discovered by S.C. Simpson and staked for the Consolidated Mining and Smelting Company of Canada, Limited in 1935. Trenching in the following year identified erratic copper distribution and the Wings claims were allowed to lapse. The ground was subsequently restaked as the Blue Bird claims and optioned to Hudson Bay. In 1954, Hudson Bay conducted an EM survey and drilled one hole beneath the trenched area that intersected erratic mineralization. The best intersection returned 1.15% Cu and 0.50% Zn over 0.24 m.

In 1959, Cree Mining Corporation Ltd. mapped the area and conducted a ground EM survey in the vicinity. The following year, Hardrock Resources Ltd. carried out ground magnetometer and EM surveys.

In 1965-69, Western Nuclear Mines performed further ground magnetometer and EM surveys and drilled 15 holes (1,929 m) on the Isle claims that covered the showing. The drilling tested the zone over a length of about 200 m.

Some of the drilling highlights are as follows:

Ddh	Width (m)	Cu (%)	Zn (%)	Ag (oz/ton)	Au (oz/ton)
2	1.43	0.98	0.15	0.19	Nil
4	2.52	2.33	1.02	0.42	0.01
5	1.19	0.55	Nil	Nil	Nil
6	0.64	1.22	0.65	0.32	Nil
11	4.18	1.56	0.71	0.33	Tr
12	0.64	1.26	0.07	0.12	Nil
13	0.88	1.35	0.26	0.90	0.04

In 1979, SMDC drilled 14 holes in the Hanson Lake area and, in 1983, conducted an airborne INPUT and magnetometer survey in the vicinity. In 1986, SMDC performed ground magnetometer, EM and gravity surveys and drilled 12 holes in the general area.

Geology and Mineralization: The showing is hosted within northerly trending, east facing (?), variably sheared and altered dacitic volcanics. Mineralization comprises mainly chalcopyrite and pyrite, as disseminations and veinlets, with minor sphalerite.

Footwall alteration (?) is formed by actinolite-biotite-diopside-garnet and chloritization.

References: Beck (1959), Byers (1957), Coleman et al. (1970), SEM Assessment Files 63-L-10-0002, -0010, -0029, -0035, -0040, -0071, -0091, -0106, SMI-0186

63-L-10-NE

Name: **Wakisew Lake**

Location: 250 m northeast of Wakisew Lake, a lake immediately northeast of the eastern arm of Hanson Lake (Location 31, Fig. 37)

History and Development: In 1966-68, Hudson Bay carried out an EM survey and drilled 14 holes in the area. Nine of the holes (739 m) were drilled on a northerly trending conductor northeast of Wakisew Lake. The drilling tested the mineralization over a length of about 150 m.

Highlights from this drilling are given below:

Ddh	Width (m)	Cu (%)	Zn (%)	Ag (oz/ton)	Au (oz/ton)
52	1.37	4.82	3.67	0.66	0.02
55	1.43	0.95	1.10	0.16	Nil
56	3.02	4.04	1.80	0.51	0.01
57	0.61	3.90	0.30	0.59	0.01
58	1.98	3.11	1.00	0.49	0.01

No further work was reported on the property until 1982, when HBED drilled a 264 m long hole beneath the previous drilling and performed a borehole Pulse EM survey on the hole. In 1983, the area of the showing was covered by an airborne INPUT and magnetometer survey flown for Granges Exploration AB. HBED carried out a ground magnetometer survey over the occurrence in 1987.

Geology and Mineralization: The showing is hosted within northeasterly trending, volcanic-derived banded quartz-hornblende±biotite±garnet gneisses, biotite gneisses and chlorite-biotite schists. These rocks are cut by granites and granite pegmatites.

Mineralization comprises pyrite, pyrrhotite, chalcopyrite and sphalerite that form semi-massive layers in places. Locally, sulphides occur within the pegmatites.

References: Johnson (1967), SEM Assessment Files 63-L-10-0022, -0023, -0066, -0082, -0090, -0109, SMI-0191

63-L-11-SE

Name: **Big**

Location: North shore, southwestern bay of Bigstone Lake (Location 32, Fig. 37)

History and Development: The showing was discovered during a ground EM survey and follow-up nine hole diamond drill program by Western Nuclear Mines Ltd. in 1966-67. Drill hole Big-2 encountered several narrow intersections. Two separate intersections returned 11.25% Cu over 0.46 m and 2.48% Cu over 2.18 m respectively.

No further work was reported until 1983, when Granges Exploration AB conducted an airborne INPUT survey over an area that included the showing.

Geology and Mineralization: The showing is hosted within dacitic volcanics and thin tuffaceous interlayers that are concealed beneath about 40 m of Paleozoic cover.

Mineralization comprises finely disseminated pyrite, chalcopyrite and chalcocite.

References: SEM Assessment Files 63-L-11-0010, -0043, SMI-0222

Name: **Way 9**

Location: About 1,400 m west of the southwest end of Bigstone Lake (Location 33, Fig. 37)

History and Development: In 1967, the International Nickel Company of Canada, Limited (Inco) conducted EM surveys over the Way, Oat and Cal claims and drilled three holes (totalling 446 m) in the area. Only one hole intersected significant mineralization.

Drill hole 31260 (on Way 9) intersected 1.59% Cu over a width of 0.46 m.

During 1981-86, a SMDC-Granges joint venture carried out extensive geophysical (including airborne INPUT and ground EM and magnetometer) surveys and follow-up anomaly drilling in the general area. In 1982 the joint venture announced the discovery of the Bigstone Cu-Zn deposit.

Geology and Mineralization: The showing is hosted within volcanic rocks that are concealed beneath about 40 m of Paleozoic cover. Mineralization comprises finely disseminated pyrite and chalcopyrite.

References: SEM Assessment Files 63-L-11-0015, SMI-0223

63-L-14-NW

Name: **Rat 64 (Deschambault Lake)**

Location: South shore of the eastern bay, Northwest Arm, Deschambault Lake (Location 34, Fig. 37)

History and Development: The area of the showing was covered by an airborne radiometric survey flown for Hudson Bay in 1955. In 1965-69, A.L. Parres carried out trenching, an airborne magnetometer and EM survey, a ground EM survey and drilled 24 holes on the Rat claims.

The following summarizes the drilling on Rat claim 64:

Ddh	Width (m)	Cu (%)	Zn (%)	Ag (oz/ton)	Au (oz/ton)
2	7.6	0.41	Tr	Nil	Tr
3	2.6	0.25	-	Tr	-
12	2.4	1.07	-	0.17	Tr

No further work has been reported on the showing to date.

Geology and Mineralization: The mineralization is hosted within quartz-chlorite-sericite schist within hornblende±biotite gneisses.

References: SEM Assessment Files 63-L-14-0002, -0006, SMI-0270

63-L-15-SE

Name: **Sewap Lake (Wak)**

Location: North end of Sewap Lake, northeast of Hanson Lake (Location 35, Fig. 37)

History and Development: In 1963-65, Hudson Bay carried out a ground EM survey on the Wak claims and drilled six holes on a conductor at the north end of Sewap Lake.

The drilling returned the following:

Ddh	Width (m)	Cu (%)	Zn (%)	Ag (oz/ton)	Au (oz/ton)
1	0.3	3.20	1.70	0.61	0.03
2	0.5	1.38	0.60	0.39	0.01
3	1.3	1.97	-	0.23	Tr
4	0.6	1.14	0.10	0.12	-

The showing was included within an airborne EM survey flown for Western Nuclear Mines Ltd. in 1968 and an airborne INPUT and magnetometer survey by Granges Exploration AB in 1983. In 1985-86 Granges Exploration AB conducted geological mapping and drilled two holes on the showing.

Geology and Mineralization: The showing is hosted within volcanic-derived quartz-biotite±chlorite ±hornblende gneisses. Mineralization is formed by pyrite and chalcopyrite. The drilling tested the mineralization over a length of 120 to 150 m.

References: SEM Assessment Files 63-L-10-0090, 63-L-15-0009, -0011, -0040, SMI-0286

63-L-16-SE

Name: **Sam (Wolverine)**

Location: About 800 m north of Wolverine Lake (Location 36, Fig. 37)

History and Development: In 1952 Hudson Bay drilled four holes on an EM conductor on the Tea 89 claim north of Wolverine Lake. The drilling encountered weak copper values. In 1979 (?) Granges Exploration encountered interesting mineralization in hole 37, drilled in the vicinity of the previous work. During 1980, Granges drilled 14 holes (1,586 m) on the zone. The following summarizes the results of the drilling:

Ddh	Width (m)	Cu (%)	Zn (%)	Ag (g/t)	Au (g/t)
68	2.16	3.26	0.18	2.41	2.56
69	2.40	0.99	0.08	1.61	0.36
70	1.61	4.48	0.24	8.50	1.65
71	1.00	0.13	2.62	0.50	0.15
72	2.32	5.52	0.33	3.97	1.85
73	0.97	2.65	0.10	3.00	0.30
74	0.67	2.32	0.01	1.00	0.25
75	1.49	1.33	0.02	1.30	0.50
76	0.70	1.00	0.24	1.87	0.53
77	0.91	1.51	-	0.69	0.11
78	0.79	1.60	0.02	2.50	0.30
80	1.83	2.22	0.01	1.83	0.15
82	1.46	0.66	0.01	0.82	0.27

Geology and Mineralization: The showing is hosted within northwest trending Amisk Group mafic volcanics. Mineralization comprises disseminations and stringers of pyrite-pyrrhotite and chalcopyrite.

References: SEM Assessment Files 63-L-09-0020, 63-L-16-0080, -0322, SMI-0311

63-L-16-SW

Name: **Abbott Lake**

Location: About 1,000 m east of the north end of Abbott Lake (Location 37, Fig. 37)

History and Development: In 1968 Hudson Bay Exploration and Development Company Limited performed ground EM surveys in the Neagle-Matheson Lakes area. During 1969-74 the company drill tested several of the identified EM conductors. More than 30 holes (totalling ± 4,250 m) were drilled on a northwest trending conductor at the northwest end of a small lake east of Abbott Lake. The following summarizes the highlights of the drilling:

Ddh	Width (m)	Cu (%)	Zn (%)	Ag (oz/ton)	Au (oz/ton)
69-144	2.0	3.32	Tr	1.28	Tr
145	2.3	4.48	0.60	2.65	0.01
146	2.2	2.14	Tr	0.97	0.01
147	2.0	3.44	Tr	1.55	0.01
148	2.2	0.95	0.60	0.11	Tr
149	1.5	0.14	0.90	Tr	Tr
151-W1	1.4	0.57	Tr	0.09	Tr
-W2	1.7	1.14	Tr	0.44	Tr
153	1.8	1.67	Tr	Tr	Tr
	1.5	1.33	0.60	0.10	Tr
155	3.7	1.97	1.20	1.54	0.01
157	1.2	2.40	0.15	0.24	0.02
158	1.7	1.80	0.10	0.44	0.02
69-160	1.3	0.15	4.50	0.57	0.01
70-173	3.0	0.14	1.80	0.54	0.01
74-296	0.7	0.10	1.20	1.46	0.02
74-299	1.3	1.27	-	0.25	0.01

Geology and Mineralization: The showing is hosted within northwesterly trending Amisk Group felsic volcanics and volcaniclastics and their altered equivalents. The latter include chlorite schist and sericite-biotite-staurolite schist. Mineralization is formed by disseminated to semi-massive pyrite, chalcopyrite, sphalerite and rare galena.

References: SEM Assessment Files 63-L-16-0042, -0044, -0051, -0056, -0223, SMI-0305

Name: **Johnson Lake**

Location: Beneath centre of Johnson Lake (Location 38, Fig. 37)

History and Development: Hudson Bay reportedly optioned the property in the vicinity of the showing and conducted an EM survey as early as 1954.

The area of the showing was staked in 1962 by Jon Geophysical as claim block no. 20. The latter lapsed in 1969. In 1977 HBED flew an airborne EM survey over the area and conducted staking in the area. The company entered into a joint venture with SMDC in 1979. During 1978-79 the joint venture carried out ground magnetometer and EM surveys and a drilled seven holes (647 m).
The only significant results were returned from holes Pat 3 (1979) and Pat 21 (1981). These holes returned 1.77% Cu, 0.9% Zn, 0.33 oz/ton Ag and 0.01 oz/ton Au over 0.21 m and 2.77% Cu, 0.40% Zn, 0.16 oz/ton Ag and 0.01 oz/ton Au over 0.30 m respectively.

In 1980-82, the joint venture conducted an additional ground magnetometer survey and drilled one more hole in the vicinity. HBED drilled two more holes (totalling 211 m) on the showing in 1985 and a further hole (174 m) in 1987.

Geology and Mineralization: The showing is hosted within easterly trending Amisk Group mafic tuffs that are intercalated with garnetiferous dacitic rocks. Mineralization comprises pyrrhotite, pyrite, chalcopyrite and sphalerite.

References: SEM Assessment Files 63-L-16-0059, -0062, -0071, -0078, -0097, -0107, SMI-1881

63-L-16-NE

Name: **Teejay (Cot, Vass Lake)**

Location: Immediately west of Vass Lake, a small lake about 1 km north of Tyrrell Lake (Location 39, Fig. 37)

History and Development: The Teejay claims were staked in 1927. The following year, R. Jowsey and associates optioned the property and carried out trenching (?) and some drilling. In 1948, J.A. Syme restaked the property and drilled three holes (100 m). In 1953, the area was restaked as the Cot claims by Hudson Bay. The following year, Hudson Bay carried out an EM survey and drilled 13 holes (1,736 m) over a strike length of 2,800 m. Only one hole encountered significant mineralization.

Hole 13 intersected 0.42% Cu over a width of 2.6 m.

No further work was reported until 1967, when Trinity Chibougamau Mines drilled a further 14 holes (590 m). Significant results of this drilling are given below:

Ddh	Width (m)	Cu (%)	Zn (%)	Ag (oz/ton)	Au (oz/ton)
1	3.9	0.64	Nil	0.11	-
2	11.9	0.48	Nil	0.26	-
4	3.2	0.36			
6	3.9	0.86			
7	5.2	0.30			
8	6.6	0.36			
9	7.3	0.46			
10	2.5	0.33			

No further work has been reported on the property.

Geology and Mineralization: The area is underlain by easterly to northeasterly trending interlayered "Kisseynew-type" hornblende, hornblende-garnet and quartz-garnet gneisses (Amisk Group ?).

Mineralization comprises disseminated to massive pyrite and pyrrhotite with minor chalcopyrite and sphalerite. The sulphides occur mainly in the more garnetiferous units; anthophyllite, staurolite, biotite, calcite and magnetite commonly accompany the mineralization. (The latter assemblage probably represents wall rock alteration - author).

References: Beck (1959), Byers and Dahlstrom (1954), SEM Assessment Files 63-L-16-0001, -0033, SMI-0316

63-M-03-NW

Name: **Hook Lake**

Location: Southeast shore ofa small lake immediately northeast of Hook Lake, about 2 km west of Gee Lake (Location 44, Fig. 5)

History and Development: Early exploration in the area was conducted in 1951 by G.F. Thompson, who hand drilled two shallow holes. In 1954, Hudson Bay optioned the property containing the showing and carried out an EM survey and drilled three holes. In 1968-69, A.L. Parres performed EM surveys and drilled 21 holes in the vicinity of the showing. Guggenheim Exploration Company Inc. also carried out a further EM survey and drilled two holes during this period. Highlights of the drilling are as follows:

Ddh	Width (m)	Cu (%)	Mo (%)	Ag (oz/ton)	Au (oz/ton)
1	0.9	5.82	0.02	1.40	0.02
3	0.3	8.19	-	0.04	0.02
4	0.7	1.41	-	0.26	0.02
5	1.0	4.22	Nil	0.58	0.01
13	1.5	1.41	-	0.28	0.02
16	1.5	0.93	Tr	0.10	Tr
17	0.3	4.74	Tr	0.88	0.06
18	0.9	5.18	Tr	0.68	0.03

No further work was reported until 1983, when Wapa Minerals carried out geological mapping, bedrock and lake sediment sampling in the vicinity of the showing.

Geology and Mineralization: The showing is hosted within intermediate volcanics of the Gee Lake greenstone belt. Mineralization comprises pyrite, pyrrhotite, chalcopyrite and rare molybdenite as disseminations and massive pods in association with quartz stringers and veins.

References: SEM Assessment Files 63-M-03-0002, -0006, -0019, -0029, SMI-0336

Name: **Moth (Wood Lake)**

Location: South end of Wood Lake (Location 45, Fig. 5)

History and Development: The area of the showing was staked as the Moth claims in 1955 by G. Rapson. In 1956, Loranda Uranium Mines Ltd. optioned the property and conducted trenching, an EM survey and drilled 9 short holes (totalling 445 m).

Only one hole encountered significant mineralization. Drill hole 1 returned 0.14% Cu and 0.09% Ni over 6.7 m.

The claims were transferred to M. Murtak in 1957. In 1968-69, Hudson Bay carried out an EM survey and drilled 16 holes in the general area of the showing. No further work has been reported on the showing to date.

Geology and Mineralization: The showing is hosted within an intrusive plug of pyroxenite-gabbro that is sparsely mineralized with pentlandite (?) and chalcopyrite.

References: Beck (1959), SEM Assessment Files 63-M-03-0003, -0017, SMI-0334

63-M-03-NE

Name: **Wood Lake East**

Location: About 8 km ESE of the south end of Wood Lake (Location 46, Fig. 5)

History and Development: The area of the showing was covered by an airborne magnetometer and EM survey flown for Mansa Exploration Co. Ltd. in 1957. In 1968-70, Hudson Bay carried out a ground EM survey and drilled 21 holes (1,653 m) in the general area of the showing.

Only one hole intersected significant mineralization. Hole 19 returned 0.55% Cu and 0.30% Zn over 1.5 m.

No further work has been reported on the showing to date.

Geology and Mineralization: Mineralization is hosted within intercalated, variably graphitic biotite gneisses and quartzitic rocks. It comprises mainly disseminated to massive pyrite and pyrrhotite with minor chalcopyrite.

References: SEM Assessment Files 63-M-03-0001, -0017, -0024, SMI-0337

63-M-11-SW

Name: **Uskik Lake**

Location: West shore of the Churchill River, southwest part of Uskik Lake, 130 km northeast of La Ronge (Location 47, Fig. 5)

History and Development: Early staking in the vicinity of the showing was carried out in 1949 by A. Jonas. Following the discovery of chalcopyrite mineralization in the vicinity, the property was restaked as the Wex and KW claims in 1955 by K.E. Wierzycki. Wierzycki and Westpol Explorations Ltd. conducted trenching and drilled four holes in 1956. Hudson Bay performed a ground EM survey in the immediate area in 1958. In 1968-69, Norsask Mines Ltd. drilled seven short holes (totalling 45 m) in the area of the showing. Also in 1969, Oro Mines Ltd. carried out geological mapping, ground magnetometer and EM surveys and drilled four holes on the showing. The results of this drilling are as follows:

Ddh	Width (m)	Cu (%)	Zn (%)	Ag (oz/ton)	Au (oz/ton)
1	2.8	1.37	-	0.55	0.04
2	1.6	1.87	-	0.97	0.69
3	0.9	3.64	-	1.10	0.10
4	2.6	0.26	-	0.20	0.03

The property containing the showing was subsequently allowed to lapse. Glitter Gold Mines later acquired the property and carried out ground geophysical surveys and further diamond drilling in 1985-86.

Geology and Mineralization: The showing is hosted within a narrow northeast trending belt of volcanic rocks. Mineralization occurs within sheared mafic (quartz-hornblende-biotite schists) and subordinate intercalated felsic units. It is formed by chalcopyrite and pyrite that occur as disseminations and within quartz-filled fractures.

References: Budding and Kirkland (1956), SEM Assessment Files 63-M-11-0002, -0004, -0020, -0029, 63-M-06-0031, -0035, SMI-0367

63-M-14-SE

Name: **Bur (Pete Lake)**

Location: North shore of Pete Lake, about 6.5 km west of The Two Rivers (Location 48, Fig. 5)

History and Development: The area of the showing was originally staked as the Bur claims by D.R. Russel in 1951. Quintor Mining Partnership acquired the property in 1954 and conducted trenching. During 1954-59, Kay Lake Mines carried out trenching, ground magnetometer and EM surveys, a geochemical water sampling program and drilled five holes (308 m) on the main showing. Only two of the holes intersected mineralization. In 1956, H.D. Carlson sampled the main pit which returned 9.05% Cu, 0.06 oz/ton Au and 0.20 oz/ton Ag over 1.2 m. Also in 1956-57, P. Stewart mapped and trenched in the vicinity and Mansa Explorations Ltd. covered the area with an airborne EM survey.

No further work was recorded in the area until 1968, when H.D. Carlson staked additional ground around the showing. New Brunswick Uranium Metals and Mining Ltd optioned the property in 1969 and carried out ground magnetometer and EM surveys and drilled 10 holes (668 m). Three holes were drilled in the immediate vicinity of the showing. Only two of the holes intersected significant mineralization:

Ddh	Width (m)	Cu (%)	Ag (oz/ton)	Au (oz/ton)
1	0.6	0.97	Tr	0.04
	0.3	4.15	Tr	0.04
3	0.9	0.95	Tr	0.04

In 1970, Straus Exploration Inc. conducted an airborne EM and magnetometer survey and drilled 16 holes in the general area of the showing. No further work has been reported on the showing to date.

Geology and Mineralization: The showing is hosted within a narrow, easterly trending shear zone within north to northwest striking hornblende-plagioclase gneisses. Mineralization comprises disseminations and stringers of pyrite, pyrrhotite, bornite and chalcopyrite.

References: Beck (1959), Budding and Kirkland (1956), SEM Assessment Files 63-M-11-0028, -0030, 63-M-14-0001, -0003, -0006, -0008, -0015, SMI-0401

63-M-15-SE

Name: **Mokoman Lake S (Ddh 99)**

Location: 800 m southwest of the south end of Mokoman Lake (Location 49, Fig. 5)

History and Development: The area of the showing was originally staked in 1969 by M.A. Holland. In 1969-71, Straus Exploration Inc. carried out geological mapping, a soil geochemical survey, ground EM and magnetometer surveys and drilled two holes (293 m).

Drill hole 99 returned 0.58% Cu and trace Ni over 3.0 m.

In 1973, M.A. Holland carried out a further EM survey in the vicinity. No further work has been reported on the showing to date.

Geology and Mineralization: The area of the showing is underlain by northerly trending biotitic and hornblendic gneisses that are intercalated with greenish coloured pegmatites. Mineralization is formed by pyrrhotite, pyrite and chalcopyrite as disseminations and minor fracture fillings within both the gneisses and pegmatites and especially along the pegmatite margins.

References: SEM Assessment Files 63-M-15-0003, -0004, -0005, SMI-0410

64-D-02-SW

Name: **Crawford (Pistol Lake)**

Location: About 1000 m south of the south shore of the north part of Pistol Lake (Location 50, Fig. 5)

History and Development: The showing was discovered by K. Crawford in 1970, during a general reconnaissance survey in the area. Straus Exploration Inc. optioned the property in 1971 and, in 1971-72, carried out trenching, ground magnetometer, EM and geochemical surveys and drilled two 'Winkie' holes (136 m).

Trench sampling returned up to 0.31% Cu over 4.6 m (including 0.75% Cu over 0.9 m). The best intersection from drilling returned 0.22% Cu over 3.0 m in ddh P-2.

The property was transferred to A.L. Parres in 1974 and allowed to lapse in 1977. HBED conducted geological mapping and an airborne EM and magnetometer survey in the vicinity in 1980-83. No further work has been reported on the showing to date.

Geology and Mineralization: Mineralization is localized along the limbs and close to the nose of a northerly trending, tight early fold within Amisk Group (?) quartz-feldspar-biotite-garnet gneisses. Chalcopyrite and pyrite occur as disseminations and fine fracture fillings through the host rocks.

References: SEM Assessment Files 63-M-15-0008, -0013, 64-D-02-0004, -0006, SMI-0416

64-D-04-NE

Name: **Hook Lake (Brabant Lake NE)**

Location: Northeast end of Hook Lake (Location 8, Fig. 12)

History and Development: Early exploration in the vicinity of the showing was conducted by Canadian Nickel Co. Ltd. in 1958 and included a five-hole diamond drill program. In 1959-60, Augustus Exploration Ltd. carried out geological photo analysis and an airborne magnetometer and EM survey in the general area. CPOG Gunnes conducted an airborne radiometric survey in the area in 1968. In 1972, Canadian Nickel Co. Ltd. performed ground magnetometer and EM surveys and drilled four holes on the showing.

Drill hole 54125 encountered 0.94% Cu over 0.79

m. Hole 54135 intersected 0.94% Cu over 2.29 m.

No further work was reported until 1981-82 when SMDC carried out reconnaissance prospecting, mapping and geochemical (lake sediment, soil and humus) sampling in the general area. In 1988, R. Myke/Antelope Oil and Gas Ltd. conducted propecting, stripping, trenching, geological mapping and sampling in the general area of the showing.

Geology and Mineralization: The showing is hosted within northeasterly trending biotitic gneisses that are intercalated with garnetiferous amphibolite units.

References: SEM Assessment Files 64-D-0001, -0004, -0009, 64-D-04-0001, -0007, -0070, -0143, SMI-1886

Name: **Betty (Redhill Lake)**

Location: About 3.2 km east of Redhill Lake (Location 9, Fig. 12)

History and Development: The area of the showing was included in airborne EM and magnetometer surveys flown for Augustus Exploration Ltd. and Sherritt Gordon Mines in 1959-60 and 1967-68 respectively. In 1969, CPOG-Gunnex performed an airborne radiometric survey over the area.

During 1966-67, Scurry Rainbow Oil Ltd. carried out geological mapping, ground EM and magnetometer surveys and drilled four holes (627 m) on the Betty claims. Only one hole intersected significant mineralization.

Drill hole Betty-3 returned 0.57% Cu, 0.10% Zn, 5.10% Pb, trace Ni, 0.02% Co, 0.24 oz/ton Ag and trace Au over a width of 1.5 m.

In 1972, Canadian Nickel Co. Ltd. restaked part of the Betty claims as the Daw claims and conducted ground EM and magnetometer surveys in the immediate area. During 1981-83, SMDC carried out regional prospecting, geological mapping and sampling (lake sediment, rock, soil, humus, old core) in the general area. In 1982, Golden Rule Resources Ltd. performed a high resolution magnetometer survey in the area. In 1988, Antelope Oil and Gas Ltd. and R. Myke carried out prospecting, trenching, sampling and geological mapping in the general vicinity.

Geology and Mineralization: The area is underlain by northeast trending "Kisseynew-type" biotitic and hornblendic gneisses and calc-silicates of the MacLean Lake Belt. Mineralization comprises pyrite and pyrrhotite with lesser chalcopyrite and sphalerite. Magnetite is commonly present. The minerals occur as disseminations and stringers and veinlets.

References: SEM Assessment Files 64-D-0001, -0004, -0008, -0009, 64-D-04-0001, -0040, -0045, -0050, -0090, 74-A-01-0071, SMI-0414

64-D-05-SW

Name: **Churchill Minerals (Rio, Nistoassini Lake)**

Location: 350 m east of the north end of Lower Nistoassini Lake (Location 10, Fig. 12)

History and Development: Sulphide mineralization was identified in the area by prospectors H. Niven and G. Fontaine as early as1929. No work was reported until 1946, when Churchill Minerals Ltd. optioned the property to Hudson Bay, who drilled 12 holes (totalling 1,494 m) on the showing, then covered by Rio claim 6.

The drilling tested the zone over a length of 240 m and to a depth 120 m. The following summarizes the highlights of the drilling:

Ddh	Width (m)	Cu (%)	Zn (%)	Ag (oz/ton)	Au (oz/ton)
1	1.2	1.85	1.30	0.43	0.13
	7.4	2.79	0.06	0.20	0.05
6	0.3	1.97	-	-	0.01
	3.0	-	0.70	-	0.01
8	3.0	1.38	0.10	Tr	0.02
	2.0	1.18	Tr	Tr	0.02
10	0.2	3.72	Tr	Tr	0.01
11	1.5	-	1.20	-	-
	6.2	0.67	0.04	Tr	Tr
12	0.9	1.18	-	-	-

The Mining Corporation of Canada Ltd. prospected in the area during 1952-53. In 1958-59, Augustus Exploration Ltd. conducted prospecting and an airborne magnetometer and EM survey in the general area.Westfield Minerals carried out geological mapping and a ground EM survey in the area in 1959. In 1961, Hydra Exploration Ltd. reported prospecting in the general area. Rio Tinto Canadian Exploration Ltd. conducted prospecting, geological mapping and soil sampling in 1965. In 1966, the Don Fisher Syndicate performed trenching and ground EM and SP surveys. On behalf of the Saskatchewan Geological Survey, W. Johnston conducted a geochemical sampling

program over the showing in 1969 and C.T. Harper carried out mapping in the area in 1974.

In 1973-74, HBED carried out a ground EM survey and drilled 17 holes (3,248 m) in the vicinity of the showing on the Vet claims (now CBS 927). The following summarizes the highlights of this drilling:

Ddh	Width (m)	Cu (%)	Zn (%)	Ag (oz/ton)	Au (oz/ton)
V-05	1.2	2.6	-	-	-
V-11	5.7	0.8	0.9	0.20	0.01
V-12	3.3	2.3	0.8	-	-
V-13	6.4	0.5	0.3	-	-
	1.7	0.9	0.1	-	-
V-14	3.5	0.1	1.8	-	-
	2.6	2.1	0.2	-	-
	11.2	0.9	0.1	-	-
V-15	12.6	0.7	-	0.05	0.02
inc.	0.4	4.1	0.2	0.74	0.06
	1.4	2.2	0.3	-	-

No further work was reported until 1982, when Golden Rule Resources conducted a high resolution aeromagnetic survey in the general area. In the immediate vicinity of the showings, HBED carried out a ground magnetometer survey and humus sampling program in 1984 and a ground VLF-EM and further magnetometer survey in 1987. Cameco performed reconnaissance geological mapping, prospecting and rock sampling in the area in 1988.

Geology and Mineralization: The area is underlain by mafic to felsic volcanics and related volcaniclastics that are intruded by quartz-feldspar porphyry, granodiorite-quartz diorite and gabbro. The showing is hosted within the 'main' or 'south shear' which is formed by a 30 to 60 m wide, laterally extensive quartz-sericite-biotite schist (derived from intercalated tuffaceous units ?). Immediately adjacent wall rocks comprise massive to pillowed basalts.

Mineralization is formed by disseminated to massive pyrite and pyrrhotite with lesser chalcopyrite, sphalerite and gold. The early drilling outlined a small lens that strikes northeasterly and is about 7.5 m wide, 26 m long and 90 m deep and plunges steeply to the west. The lens grades 1.47% Cu and 0.02 oz/ton Au.

References: Beck (1959), Byers (1948), Harper (1983, 1984), Johnston (1972), SEM Assessment Files 64-D-0001, 64-D-04-0001, -0002, -0003, -0004, -0005, -0008, -0013, -0032, -0038, -0048, -0052, -0060, -0090, -0141, 64-D-05-0001, -0003, -0005, -0009, -0017, -0024, -0042, -0052, -0060, -0087, -0095, SMI-0459, -0474

64-D-05-NE

Name: **May Lake NE**

Location: East shore of the northwest end of 'Holt' Lake, a small lake about 1.4 km ENE of the north end of May Lake (Location 11, Fig. 12)

History and Development: Sulphide zones were first discovered in the area in 1929 by the Canadian Department of Mines. In 1957-59, Studer Mines conducted trenching and pitting in the area. During 1959-63, Augustus Exploration Ltd. carried out an airborne EM and magnetometer survey, ground geophysical surveys, geological mapping and prospecting in the area. A further airborne EM and magnetometer survey was flown in the area for Magenta Exploration Ltd. in 1969.

During 1967-69, Sherritt Gordon Mines Ltd. performed airborne and ground EM surveys and drilled 31 holes (± 2,400 m) in the area; 14 of these holes (69-1, 69-4 to 69-16 inc.) were drilled on the showing.

Some of the more interesting drill results include the following:

Ddh	Width (m)	Cu (%)	Zn (%)	Ag (oz/ton)	Au (oz/ton)
69-04	1.1	7.11	2.13	1.12	0.04
	0.3	5.04	2.27	0.88	0.02
69-05	0.2	11.97	-	1.52	0.06
69-09	1.6	0.69	0.72	0.16	Tr
	0.4	2.08	0.37	0.40	Tr
	0.2	3.83	1.29	0.70	0.05
	0.3	2.85	6.71	0.90	Tr
69-10	0.3	9.80	2.02	1.14	Tr
	1.2	3.14	2.18	0.56	0.01
69-11	0.3	3.93	0.86	0.80	Tr

The property was subsequently abandoned.

During 1973-75, Granges Exploration AB carried out airborne INPUT and magnetometer surveys, ground EM surveys, geological mapping and drilled 23 holes (May 1 to 23; 1,028 m) in the area. None of these holes were drilled on the showing.

In 1977-78, SMDC/Granges Exploration AB conducted geological mapping, ground magnetometer and EM surveys and drilled 16 holes (May 24 to 39; 828 m) in the area; four of these holes (May 35 to 38 inc.) were drilled in the

vicinity of the showing. Results were negligible.

In 1982-83, SMDC performed prospecting and sampling (overburden, soil, rock and old core) in the vicinity. In 1986, Channel Resources Ltd. performed ground magnetometer and EM surveys in the area.

Geology and Mineralization: The area is underlain by two cycles of felsic volcanism - sedimentation. The showing occurs within the lower cycle at the contact of rhyolite with structurally overlying fine grained volcanogenic sediments.

The mineralization is hosted within an ENE trending green, variably graphitic cherty horizon on the southern limb of a major easterly trending F2 synform.

Mineralization comprises disseminated to semi-massive pyrrhotite and pyrite, with minor sphalerite and chalcopyrite.

References: Johnston (1970), SEM Assessment Files 64-D-0001, -0004, -0006, 64-D-04-0001, -0002, 64-D-05-0003, -0026, -0028, -0055, -0056, -0066, -0067, -0068, -0069, -0071, -0072, -0073, -0086, -0093, 64-D-08-0026, -0041, SMI-0467a, -1968

64-E-04-NE

Name: **Korvin Lake**

Location: About 1.7 km NE of Korvin Lake, a lake approximately mid-way between Peter and Robson Lakes (Location 55, Fig. 5)

History and Development: In 1966, the Don Fisher Syndicate covered the area with an airborne magnetometer survey and conducted follow up geological mapping and sampling. Attention was drawn to a gossanous area west of the Wathaman River. In 1967-69, the Syndicate conducted ground EM, SP, magnetometer and test IP surveys, and follow up trenching and drilled six holes (215 m). The work revealed widespread mineralization.

Trench sampling returned the following results:

Trench	Width (m)	Cu (%)	Ni (%)
1	6.7	0.23	0.01
2	3.7	0.31	0.01
10	1.8	0.55	0.39

Drilling returned the following results:

Ddh	Width (m)	Cu (%)
7	4.4	0.29
8	5.5	0.16
9	8.2	0.26
10	31.7	0.23
11	36.6	0.29
inc.	6.1	0.56

Drill holes 7, 8 and 9 were drilled in the vicinity of trench 10; holes 10 and 11 were drilled about 800 m to the west.

The Hanna Mining Corporation Ltd. acquired the property containing the showings in 1969 and carried out geological mapping, airborne INPUT and magnetometer surveys, a ground EM survey, a partial scintillometer survey and drilled three holes (578 m). Only one hole (69-3) encountered significant mineralization, i.e. 0.37% Cu and 0.02% Ni over 1.5 m.

Also in 1969, the area of the showings was included in airborne radiometric and INPUT surveys flown for Boswell River Mines, Buval Mines and Canol Mines. No further work was reported until 1981, when SMDC conducted reconnaissance geological mapping, prospecting, lake sediment and overburden sampling, trenching and ground EM and magnetometer surveys in the vicinity. No further work has been reported to date.

Geology and Mineralization: The showings are hosted within mafic intrusive complexes of the Archean (?) Peter Lake Domain. The predominant host rock is gabbroic to dioritic in composition. Mineralization is formed by disseminated pyrite, pyrrhotite and chalcopyrite that form up to 5% by volume. Mineralization is commonly associated with coarser grained phases of the gabbro and is typically located close to the gabbro-(younger) granite contacts.

References: SEM Assessment Files 64-E-03-0002, 64-E-04-0003, -0005, -0006, -0007, -0009, -0027, -0028, 64-E-06-0001, 74-A-0006, SMI-0538a, -0538b, -0538c, -1845

73-P-02-SW

Name: **Ab (Edna, Docummun Bay)**

Location: South shore of Docummun Bay, a small bay on the south shore of Abrams Bay, Lac La Ronge (Location 56, Fig. 5)

History and Development: The earliest reported

exploration in the vicinity of the showing was conducted by L. McArthur in 1960. The work comprised drilling of two holes (24 m) on a previously identified copper showing. In 1966, G. Ducommun carried out trenching, sampling and drilled two more holes (46 m).

One chip sample returned 1.26% Cu, 0.36% Ni, 0.16 oz/ton Ag and tr. Pt over 1.2 m.

No further work was reported on the showing until 1986, when SMDC performed ground magnetometer, VLF-EM and HLEM surveys and drilled eight holes in the general area.

Geology and Mineralization: The mineralization is hosted within 1.2 m wide, 15 m long boudin (?) of pyroxenite-gabbro within quartz-feldspar-biotite gneiss. Pyrrhotite, pyrite and chalcopyrite locally form up to 45 per cent of the host rock.

References: SEM Assessment Files 73-P-02-0001, -0006, -0007, SMI-0722

73-P-03-NE

Name: **Lac (English Bay)**

Location: About 200 m north of the northeastern part of English Bay, Lac La Ronge (Location 57, Fig. 5)

History and Development: The earliest exploration in the vicinity of the showing comprised trenching by L. McArthur in 1958. The property was allowed to lapse and restaked in 1968 by W.B. Dunlop, who conducted ground EM and magnetometer surveys. The work outlined two conductors. In 1969, Continental McKinney Mines Ltd. drilled five holes (totalling 564 m) on the outlined conductors. Two holes on the northern conductor returned negligible results. The other holes, drilled on the southern conductor, returned up to 0.15% Cu over 4.6 m and 0.12 to 0.15% Cu over 13.7 m with negligible values of Ni, Ag and Au.

During 1973-74, the area of the showing was included in the Saskatchewan Department of Mineral Resources 'La Ronge Horseshoe Project' which comprised ground magnetometer, EM, IP, resistivity and geochemical surveys and a three-hole (390 m) drill program. No further work was reported until 1983-86, when Greenstone Prospectors Syndicate carried out detailed prospecting and soil panning in the area.

Geology and Mineralization: The showing comprises an easterly trending, disseminated to massive pyrite-pyrrhotite unit within garnetiferous quartz-muscovite gneiss.

References: SEM Assessment Files 73-P-03-0002, -0010, -0011, -0021, -0028, -0029, SMI-0726

73-P-06-SE

Name: **Williams Peninsula**

Location: Central part of Williams Peninsula, north shore of Lac La Ronge (Location 58, Fig. 5)

History and Development: The area of the showing was originally staked by H. Isbestor in 1953. The property was allowed to lapse and restaked in 1954 by Hixon Uranium Mines Ltd. Madson Red Lake Gold Mines Ltd. optioned the property in 1954 and conducted mapping and trenching and drilled 11 holes (1,524 m). In 1966, part of the property was covered by the Lusk claims, registered to L. Lusk. In 1966-67 the Moose Point Syndicate performed ground magnetometer and EM surveys in the area and drilled four holes (406 m) to the northeast, under the lake. Rio Tinto Canadian Exploration carried out an IP survey and drilled a further three holes (290, 293, 294; totalling 479 m) in the area in 1966-67. Highlights of the drilling are as follows:

Ddh	Width (m)	Cu (%)
56-2	4.8	0.37
-3	0.9	0.82
-5	0.4	1.39
-6	0.6	1.39
-7	1.1	0.63
-9	1.0	1.23
66-1	4.6	1.05
-3	3.5	1.10
67-290	26.7	0.29

In 1968, Great Plains Development Co. carried out geological, magnetometer and EM surveys over the southwestern portion of the peninsula. No further activity was reported until 1983, when Durama Enterprises Limted acquired the property containing the showing. In 1985-89, Durama conducted limited prospecting, geological mapping and ground VLF-EM and magnetometer surveys. In 1986, airborne VLF-EM and magnetometer surveys were flown over the area for Millrock Development Corporation.

Geology and Mineralization: Mineralization encountered on the Williams Peninsula represents the southwestern extension of the Anglo-Rouyn

Cu-Ag-Au horizon. The drilling tested a more than two kilometer length of the favourable horizon.

Mineralization is formed by disseminated chalcopyrite, pyrrhotite, pyrite and magnetite. The latter occur within a broad zone of variably sheared, predominantly fine grained, northeasterly trending felsic rocks (tuffs ?) that lie immediately south of the contact with the Jepson Lakes Granite Sill. Higher sulphide concentrations appear to lie within more intense quartz-filled shears.

References: Forsythe (1971), SEM Assessment Files 73-P-06-0007, -0024, -0031, -0032, -0042, -0103, -0111, -0117, -0128, SMI-0735

73-P-07-SW

Name: **Dam-Crescent Lakes**

Location: About 1.5 km west of the southwest end of Bulbick Lake and 1.5 km northwest of Pipestone Bay, Lac La Ronge (Location 59, Fig. 5)

History and Development: Early exploration in the vicinity of the showing was conducted by Anglo-Rouyn Mines Ltd. in 1952-53, comprising geological mapping and a 50-hole diamond drill program along the mineralized Anglo-Rouyn horizon. The area of the showing was originally staked as the Kroy claims by E. F. Partridge in 1955. In 1956, the property was transferred to Jahala Lake Uranium Mines Limited, who performed a ground EM survey and drilled six holes (three totalling 618 m). The drilling encountered wide widths of low grade mineralization; one hole reportedly intersected 0.12% Cu over 7.6 m. In 1957-58, Rio Tinto Canadian Exploration Limited conducted an airborne EM and magnetometer survey over the area. The property was allowed to lapse in 1962 and restaked as the Lee claims in 1963 by Anglo-Rouyn Mines Ltd. In 1963-65 the company conducted trenching and drilled four holes in the vicinity of the showing.

The best trench results were obtained from trenches R-6 and R-12. Trench R-6, near Crescent Lake, returned 0.30% Cu and 0.14 oz/ton Au over 0.5 m; trench R-12, near Dam Lake-Little Lake, returned 0.72% Cu and 0.02 oz/ton Au over 0.9 m.

Also in 1964, Rio Tinto Canadian Exploration Limited perfomed trenching, soil sampling and geological mapping in the area. In 1968-70, La Ronge Mining Limited carried out a ground magnetometer survey and drilled eight holes in an area immediately northeast of the showing. No further work was reported until 1985-86, when Bradner Resources conducted soil sampling, magnetometer, VLF-EM and localized IP surveys in the area immediately northeast of the showing. In this same area, Noranda Exploration Company Limited carried out humus and bedrock geochemistry, detailed geological mapping and diamond drilling (2 holes, 183 m) in 1987. Durama Enterprises Limited performed a limited geological mapping, stripping and sampling program in 1989.

Geology and Mineralization: The Dam Lake-Crescent Lake showing lies along the Anglo-Rouyn mineralized horizon, approximately 7 km NE of the Anglo-Rouyn minesite. Weak copper mineralization is known over a length of more than 800 m. The mineralization is hosted within northeast trending fine grained, vaguely banded felsic rocks (tuffs ?), close to the contact with the northwesterly-lying Jepson Lake Granite Sill. It comprises disseminated chalcopyrite with minor amounts of molybdenite, pyrite, pyrrhotite, arsenopyrite and traces of native copper.

References: Forsythe (1971), SEM Assessment Files 73-P-07-0030, -0031, -0046, -0081, -0093, -0094, -0099, -0153, SMI-0786

73-P-07-NW

Name: **MacKay Lake-Teneycke Lake**

Location: Immediately southeast of MacKay Lake (Location 60, Fig. 5)

History and Development: The showing was discovered by prospectors O. Hanson and B. Anderson in 1966. Trenching and sampling and limited SP and magnetometer surveys were carried out at that time. Two chip samples returned 0.24% Cu, 0.03% Ni and 0.01 oz/ton Au over 1.8 m and 0.37% Cu, 0.06% Ni and 0.02 oz/ton Au over 1.8 m respectively. The property lapsed in 1971. No further work was reported until 1985, when the area was included in an airborne EM and magnetometer survey by Colray Resources.

Geology and Mineralization: Mineralization is hosted within a quartz diorite-gabbro plug. It comprises disseminated chalcopyrite and rare pyrrhotite.

References: Forsythe (1971), SEM Assessment Files 73-P-07-0083, -0112, -0153, SMI-0780

Name: **Nemi**

Location: Peninsula in Heyer Bay, southeast part of MacKay Lake (Location 61, Fig. 5)

History and Development: In 1938, E. Crull discovered gold on the Eureka claims (known as the 'Eureka' showing) on the peninsula, Heyer Bay. During 1939-41, Churchill Valley Mineral Exploration Limited carried out trenching and drilling. During 1960-64, W. Nemanishen performed geological mapping, trenching and SP surveys on the Day and Nemi claims that covered the showing. In 1963, Bison Petroleum and Minerals Ltd. optioned the property and conducted geological mapping, trenching and EM surveys.

In 1966, O. Hanson and B. Anderson discovered a new copper showing on the Nemi 1 claim, during trenching of a SP anomaly immediately north of the Eureka east zone.

Chip samples from the discovery returned 3.91% Cu, 0.16 oz/ton Au and 1.40 oz/ton Ag over 0.6 m and 1.01% Cu, 0.20 oz/ton Au and 0.56 oz/ton Ag over 0.6 m from trenches 1 and 2 respectively.

Dee Explorations Limited optioned the property and drilled six short holes (90 m) on the showing. The holes, drilled over a strike length of 36 m, returned assays of 0.06 to 0.64% Cu, 0.01 to 0.16 oz/ton Au and 0.08 to 1.00 oz/ton Ag over narrow widths.

During 1967-69, W. Nemanishen conducted further trenching and SP surveys and drilled two holes north and south of the peninsula. In 1969, Asarco Exploration Company of Canada Limited optioned the property and drilled three holes on the Eureka east zone. Trench sampling on the Nemi showing returned disappointing results. The best sample returned 0.26% Cu, 0.18% Zn, 0.35 oz/ton Ag and 0.04 oz/ton Au over a width of 1.8 m.

During 1974-76, W. Nemanishen conducted further trenching, SP and magnetometer surveys and drilled one hole on the Eureka west zone.

SMDC carried out an airborne INPUT and magnetometer survey and lake sediment geochemical survey over the area during 1978-79. No further work was reported until 1985, when Colray Resources Inc. performed an airborne VLF-EM and magnetometer survey over the area. In 1987, Claude Resources Inc. reported geological mapping, prospecting and sampling and Radcliffe Resources Ltd. carried out ground VLF-EM and magnetometer surveys, geological mapping and prospecting, and trenching and sampling in the general area of the showing.

Geology and Mineralization: The showing comprises a northeast trending quartz-filled fracture zone, up to 15 m wide, within easterly trending felsic volcaniclastic rocks. The mineralized structure may be a tensional feature related to the easterly trending, shear-hosted Eureka gold zone.

Mineralization comprises chalcopyrite and pyrite with minor arsenopyrite and secondary copper minerals.

References: Beck (1959), Coombe (1984), Forsythe (1971), SEM Assessment Files 73-P-07-0040, -0041, -0084, -0085, -0086, -0087, -0088, -0111, -0138, -0140, -0144, -0146, -0233, -0246, SMI-0755

73-P-10-NW

Name: **Kas (Nipew (Dead) Lake)**

Location: North shore of peninsula in the northeast part of Nipew Lake (Location 62, Fig. 5)

History and Development: The showing was staked as the Kas claims by prospectors Kilgour and Shannon in agreement with Cominco in 1957. That year Cominco performed geological mapping and ground EM and magnetometer surveys. In 1966, the area was included in an airborne EM and magnetometer survey by Noranda Exploration. Noranda carried out ground EM surveys and drilled six holes in the general area the following year. In 1967-68, Great Plains Development Company conducted geological mapping, trenching, geochemical sampling and drilled five holes on the property.

Three chip samples from one of the trenches (Trench 4) returned 0.34% Cu over 3.7 m, 0.27% Cu over 4.9 m and 1.09% Cu over 2.4 m respectively (0.47% Cu over 11 m). All three samples yielded only trace Ni. Samples from other trenches returned negligible results. A drill hole (hole 1) completed beneath Trench 4 returned 0.71% Cu over 6.1 m.

No further work was reported until 1987-88, when the area of the showing was included in an airborne VLF-EM and magnetometer survey, geological mapping and prospecting and geochemical sampling program by Great Bend Resources and in a regional geological mapping,

prospecting and geochemical sampling program by Cogema. Also, in 1987 M.C. Lederhouse carried out geological mapping and prospecting in the area of the showing. In 1988, Macewan Development performed reconnaissance mapping, prospecting and geochemical sampling in the general area.

Geology and Mineralization: The showing is hosted within northeasterly trending 'hornblende-biotite schist'. Mineralization comprises disseminated chalcopyrite, pyrite and pyrrhotite.

References: Padgham (1960), SEM Assessment Files 73-P-10-0001, -0017, -0033, -0037, -0040, -0055, -0103, -0113, -0136, SMI-0833

73-P-10-NE

Name: **Bandur Lake**

Location: About 1,200 m west of the south end of Bandur Lake and 200 m east of the La Ronge-Southend highway (Location 63, Fig. 5)

History and Development: The area of the showing was covered by an airborne magnetometer survey flown for the Government of Saskatchewan in 1963. Mineralization was exposed during construction of the La Ronge-Reindeer Lake highway in 1965 and staked in the same year by W.S. Shupe. The property was subsequently transferred to Cougar Development Corporation Limited. The following year, the company carried out a program of prospecting and trenching and drilled one hole (46 m) under the main trench.

The drill hole encountered 36.6 m of weak mineralization. Assays returned 0.90% Cu+Ni over 8.5 m, 0.90% Cu+Ni over 1.2 m and 0.63% Cu+Ni over 2.4 m.

In 1967, Rio Tinto Exploration Ltd. performed geological mapping and ground magnetometer, EM and SP surveys in the area. In 1970, Canadian Bonanza Petroleums Limited and Silver Chief Minerals Limited carried out a ground EM survey. That year Cougar Development conducted an IP survey. The property lapsed in 1973. No further work was conducted until 1981, when the area of the showing was covered by an airborne INPUT and magnetometer survey flown for SMDC.

Geology and Mineralization: The mineralization is hosted within a poorly exposed (± 4 sq. m) gabbroic sill that intrudes volcanics of the Central Metavolcanic Belt. Pyrrhotite and chalcopyrite occur as disseminations and fracture fillings.

References: SEM Assessment Files 73-P-10-0007, -0023, -0029, -0063, -0064, -0073, SMI-0829

Name: **Quartz (Esmay Lake S)**

Location: South end of Esmay Lake (Location 64, Fig. 5)

History and Development: Cree Mining Corporation Ltd. trenched the showing on the Quartz claims in 1957. That year, the company conducted a magnetometer survey and drilled five holes (104 m) on Quartz claims 8 and 9. The following highlights the drilling results:

Ddh	Width (m)	Cu (%)	Au (oz/ton)
1	15.2	0.57	
2	4.0	1.87	0.08

The Quartz claims lapsed in 1959. In 1966, the area of the showing was included in an airborne EM and magnetometer survey conducted by Noranda Exploration Co. Ltd. and in a geological mapping and bedrock sampling program performed by Great Plains Development Co. of Canada Ltd.

No further work was reported until 1981, when SMDC carried out an airborne INPUT and magnetometer survey in the area. During 1982-84, SMDC carried out prospecting, geological mapping, trenching, geochemical sampling (sediment, soil, humus, rock, old core) and ground magnetometer and EM surveys in the vicinity of the showing. In 1986-87, SMDC performed further prospecting, geological mapping and sampling (outcrop, boulder and soil) in the immediate area of the showing. Also in 1987, M.C. Leaderhouse conducted prospecting, geological mapping and sampling in the general area.

Geology and Mineralization: The showing is hosted within northeasterly trending mafic volcanics of the Central Metavolcanic Belt. Mineralization lies within more easterly trending shearing and comprises disseminated pyrite, pyrrhotite and chalcopyrite.

References: Padgham (1963), Pearson and Froese (1959), SEM Assessment Files 73-P-0005, 73-P-10-0017, -0055, -0073, -0085, 73-P-11-0033, 73-P-15-0003, SMI-0812

73-P-11-NE

Name: **Rosie (Nipew (Dead) Lake)**

Location: South-central shore of Nipew (Dead) Lake (Location 65, Fig. 5)

History and Development: The Rosie claims were staked in 1956 for Pre Cam Exploration & Development. Ground EM and magnetometer surveys were carried out and 11 holes (1,242 m) were drilled during 1956-57.

The best intersection was reported from drill hole 8, which assayed 0.49% Cu, 0.28% Ni and traces of Co, Ag and Au over a width of 3.0 m.

In 1965, Great Plains Development staked the area and carried out geological mapping and bedrock sampling. Everest Mining and Exploration conducted ground EM and magnetometer surveys and geological mapping in the general area in 1968.

No further work was reported until 1987-88, when the area was included in an airborne VLF-EM and magnetometer survey and mapping and sampling (rock and bark) program by Great Bend Resources and in a regional mapping, prospecting and sampling (rock, bulk till, stream sediment and soil) program by Cogema. Also in 1987, Kristo Gold carried out ground VLF-EM and magnetometer surveys and M.C. Leaderhouse conducted geological mapping and prospecting in the general area of the showing.

Geology and Mineralization: Widespread low grade copper(-nickel) mineralization occurs throughout a diorite-gabbro intrusive on the south shore of Nipew Lake. Mineralization comprises disseminated chalcopyrite, pyrrhotite and pyrite with minor magnetite and hematite.

References: Morris (1960), Padgham (1960), SEM Assessment Files 73-P-10-0003, -0033, -0035, -0036, -0049, -0055, -0103, -0118, SMI-0849

73-P-15-SE

Name: **Vuku (Esmay Lake N)**

Location: 2.4 km NE of Lofvendahl Lake (Location 66, Fig. 5)

History and Development: The area of the showing was oringinally staked as the Vuku claims in 1956 by D.McTavish. Exploration on the showing in 1956 comprised trenching and ground magnetometer and EM surveys.

A 12 m long trench on the Vuku 4 claim returned 0.50% Cu over a width of 9.1 m.

Westore Mines Ltd. and Pre-Cam Exploration and Development Ltd. acquired the property in 1957 and conducted a ground magnetometer survey and drilled four holes (318 m) on the showing. The drilling returned negligible results.

In 1966-68, the general area of the showing was included in an airborne EM and magnetometer survey and follow-up ground EM survey program by Noranda Exploration Co. Ltd. and in a geological mapping and bedrock sampling program by Great Plains Development Co. of Canada Ltd. In 1969, Iroquois Mines Ltd. performed a ground EM survey and drilled two holes (152 m) in the vicinity. The drill holes did not encounter anything of significance. Airborne EM (INPUT) and magnetometer surveys were conducted in the area by Energy Reserves Canda/SMDC in 1977 and by SMDC in 1981. In 1985-87, R. Smith carried out prospecting and rock sampling and SMDC performed geological mapping, prospecting and sampling (rock, bulk till and soil) in the general area of the showing.

Geology and Mineralization: The showing is hosted within northeasterly trending mafic volcanics of the Central Metavolcanic Belt. Chalcopyrite, pyrrhotite and pyrite occur as disseminations and fracture fillings in small shear zones in the volcanics, near the contact with a granitoid intrusive.

References: SEM Assessment Files 73-P-10-0073, 73-P-15-0004, -0012, -0017, -0026, -0032, -0061, -0073, SMI-0874

73-P-15-NE

Name: **Kel (Forbes Lake)**

Location: Northeast end of Forbes Lake (Location 67, Fig. 5)

History and Development: In 1955-56 the Keep, Keno and Kel claims were staked for Forbes Lake Mining Corporation (subsequently transferred to Westore Mines Limited), Arcano Mines Limited (subsequently transferred to Kelkeno) and Kelkeno Copper Corporation Limited respectively to cover extensive magnetic anomalies in the Forbes-Laroque Lakes area. During this period, the companies carried out magnetometer surveys and drilled 20 holes in the area; 10 of these (1,319 m)

were drilled over a length of 3.2 km along a northwesterly zone of anomalies whilst another 10 holes (1,233 m) were drilled along a southeasterly zone of anomalies. Most drill holes returned only negligible values. Hole Ke-3 returned 1.09% Cu over 1.5 m.

The claims lapsed in 1958. Noranda Exploration Co. Ltd. restaked the area in 1967, following an airborne EM and magnetometer survey over the area. In 1967-69, Noranda conducted ground EM surveys and drilled 43 holes in the general area of the showing. Nothing of significance was reported.

No further work was reported until 1977, when the area of the showing was included in an airborne INPUT and magnetometer survey flown for Energy Reserves Canada/SMDC. In 1987-88, Goldsil Resources Ltd/SMDC conducted geological mapping, prospecting, rock sampling and ground VLF-EM and magnetometer surveys in the general area of the showing.

Geology and Mineralization: The mineralization is hosted within the southeastern trend of anomalies mentioned above. It occurs within sheared calc-silicates and hornblendic rocks (volcanics ?) that form laterally persistent horizons within the surrounding, predominantly greywacke-derived, biotitic gneisses. Mineralization is formed by disseminated to massive pyrite-pyrrhotite±graphite with minor chalcopyrite and traces of sphalerite.

References: Beck (1959), SEM Assessment Files 73-P-001673-P-15-0001, -0002, -0005, -0017, -0033, -0066, -0068, SMI-0875

73-P-16-NW

Name: **Frog Lake (Neyrink Lake)**

Location: Immediately east of the south end of Frog Lake, a small lake northwest of the central part of Neyrink Lake (Location 68, Fig. 5)

History and Development: Early recorded prospecting in the vicinity was conducted by E. Hird. The showing was discovered by V. Studer in 1966. Studer staked the showing the same year and carried out stripping and trenching. Also in 1966, the showing was examined and sampled by Canex and by Scurry Rainbow Oils. The latter company performed a ground magnetometer and EM survey. Great Plains Development Company of Canada Ltd. optioned the property in 1967 and conducted prospecting, detailed mapping, trenching, a ground magnetometer survey and drilled one hole (G-1, 39 m).

In 1967, Cominco optioned the property and carried out geological mapping, trenching, ground EM and limited IP surveys and drilled five holes (C-1 to C-5, 664 m). Cominco terminated the option in 1968. Highlights of the drilling are as follows:

Ddh	Width (m)	Cu (%)	Ni (%)	Ag (oz/ton)	Au (oz/ton)
G-1	16.8	0.54	Tr	Tr	Tr
C-1	5.2	0.20	-	Tr	-
	10.7	0.36	-	Tr	-
	9.1	0.25	-	Tr	-
C-2	10.7	0.23	0.02	Tr	-
	18.3	0.28	0.03	Tr	-
C-3	5.2	0.22	0.02	Tr	-
	29.0	0.26	0.02	Tr	-
	7.9	0.26	0.02	Tr	-
C-4	3.7	0.18	-	-	Tr
C-5	11.3	0.30	0.03	Tr	-

No further work was reported until 1986, when Ansco Resources Ltd. conducted geological mapping and rock sampling. In 1986-87, both SMDC and Colray Resources performed geological mapping, prospecting, sampling and biogeochemical surveys in the general area. SMDC also drilled 12 holes in the vicinity in 1986.

Geology and Mineralization: Mineralization is hosted within a meso- to leuco-diorite pluton that intrudes the volcanics of the Central Metavolcanic Belt along their western contact with the biotitic gneisses of the Crew Lake Belt. Chalcopyrite, pyrrhotite, pyrite and magnetite are widely disseminated throughout the intrusive body. The showing itself extends over a length of about 350 m and a width of up to 40 m.

References: SEM Assessment Files 73-P-16-0011, -0012, -0020, -0021, -0081, -0085, -0089, SMI-0896

74-A-15-NW

Name: **Jan (Janice Lake)**

Location: About 200 m southwest of the central part of Janice Lake (Location 69, Fig. 5)

History and Development: Interest in the area commenced in 1953, when prospector S. Eninew discovered a chalcocite-bearing boulder by the Wathaman River. The Jan occurrence was discovered during a reconnaissance bedrock sampling and prospecting program by Great Plains Development in 1966. The occurrence was

subsequently staked as the Jan claims. During 1966-70, Great Plains carried out geological mapping, a bedrock geochemical program , trenching, a ground EM survey and drilled four 'packsack' holes (121 m) on the showing.

Only hole 1 intersected significant mineralization, i.e. 0.21% Cu over 4.6 m.

In 1978, the area was included in a program by Agip Canada that comprised an airborne INPUT and magnetometer survey, lake water and sediment sampling, prospecting and geological mapping.

Geology and Mineralization: The showing is hosted within pink-grey 'metaconglomerate' (metamorphosed red-beds(?) - author) of the Wollaston Group. These rocks are cut by younger pegmatite dykes. Mineralization comprises disseminated malachite, chalcocite, native copper and magnetite; chalcopyrite and bornite are rare. The copper minerals apparently form lensoid concentrations that are subparallel the foliation in the host rocks but also occur within the younger pegmatites.

References: Coombe (1977), Rath (1969), Rath and Morton (1969), Scott (1973), SEM Assessment Files 74-A-0013, 74-A-15-0002, -0004, -0006, -0007, -0014, -0020, SMI-1016

Name: **Juno**

Location: By the bend in the Wathaman River, about 1 km SSE of Juno Lake (Location 70, Fig. 5)

History and Development: Interest in the area commenced in 1953, when prospector S. Eninew discovered a chalcocite-bearing boulder by the Wathaman River. In 1962, E.F. Partridge and Falconbridge Nickel prospected the area and located and sampled 11 mineralized boulders and one frost-heaved (?) outcrop (the No.1 showing). During 1962-63, Partridge and Falconbridge carried out bedrock and soil geochemical surveys, a magnetometer survey and drilled six holes (261 m).

One chip sample from the No.1 showing returned 0.43% Cu and 0.40 oz/ton Ag over a width of 5.5 m. Other samples returned negligible results.The drilling failed to intersect any significant mineralization.

During 1966-67 Newmont Mining optioned the property and conducted soil sampling, magnetometer and IP surveys, geological mapping and drilled one hole (215 m). The hole did not encounter any significant mineralization.

In 1977, SMDC flew an airborne VLF-EM and magnetometer survey over an area that included the Juno occurrence. In 1978, the area was included in a program by Agip Canada that comprised an airborne INPUT and magnetometer survey, lake water and sediment sampling, prospecting and geological mapping.

Geology and Mineralization: Bedrock is rare in the area of the showing. The mineralization in boulders and outcrop(?) is hosted within green to red-brown meta-arkose of the Wollaston Group. Chalcocite predominates as platings and disseminations parallel the bedding. Minor chalcopyrite, bornite, covellite, malachite, magnetite and hematite accompany the chalcocite.

References: Pyke and Partridge (1967), Rath (1969), Rath and Morton (1969), Scott (1973), SEM Assessment Files 74-A-0013, 74-A-15-0004, -0006, -0008, -0009, SMI-1019

Name: **Kaz**

Location: Immediately west of Kaz Lake, a small lake about 800 m NE of Janice Lake (Location 71, Fig. 5)

History and Development: The Kaz occurrence was discovered by prospector K. Parada during a reconnaissance bedrock sampling and prospecting program by Great Plains Development in 1966. The occurrence was subsequently staked as the Kaz claims. During 1966, Great Plains carried out trenching and drilled one 'packsack' hole (15 m) on the showing. In 1971, Great Plains conducted further prospecting which located several mineralized boulders.

CanDel Oil Ltd.-Husky Oil Operations Ltd. optioned the property in 1972 and conducted further prospecting in the Kaz Lake area, leading to the discovery of more mineralized boulders. In 1974, Giant Yellowknife Mines Ltd. optioned the property and carried out prospecting, a magnetometer survey, geochemical (soil and rock) sampling, a statistical count of pebbles in the till, trenching, sluicing and geological mapping. This work led to the discovery of further mineralized boulders and outcrops.

The drill hole (66-5) intersected only traces of native copper. Assays from native copper-chalcocite bearing boulders returned up to 3.67% Cu and 0.52 oz/ton Ag; assays from

chalcopyrite-galena(-sphalerite) bearing boulders returned up to 0.82% Cu, 3.81% Pb, 0.01% Zn and 2.62 oz/ton Ag. 'Plugger' (rock drill) dust samples returned up to 3.7% Cu from the trenched areas. Few chip samples were taken; one composite chip sample from Trench 5 returned 2.24% Cu over a 1.5 m width.

In 1978, the area was included in a program by Agip Canada that comprised an airborne INPUT and magnetometer survey, lake water and sediment sampling, prospecting and geological mapping.

Geology and Mineralization: The Kaz showing is hosted within 'metaconglomerate' (metamorphosed red-beds ? - author) of the Wollaston Group. These rocks are cut by younger pegmatite dykes. Mineralization comprises disseminated malachite, chalcocite, native copper and magnetite; chalcopyrite, covellite and bornite are rare. Chalcocite occurs as large blebs and segregations in Trench 1-4-5.

Several boulders of 'metaconglomerate' in the vicinity of the Kaz showing contain disseminated chalcopyrite and galena; pyrite and sphalerite are rarely present. A source for these boulders has not been found to date.

References: Coombe (1977), Pyke and Partridge (1967), Rath (1969), Rath and Morton (1969), Scott (1973), SEM Assessment Files 74-A-0013, 74-A-15-0007, -0023, SMI-1017

Name: **Rafuse Lake**

Location: Immediately SE of Rafuse Lake (Location 72, Fig. 5)

History and Development: The Rafuse Lake showing was discovered by prospectors J. Bell and T. Ballantyne in 1969 during checking of airborne radiometric anomalies on behalf of Great Plains Development. During 1969-70, Great Plains carried out further prospecting, trenching, sluicing, geological mapping, a soil geochemical survey, IP, EM and magnetometer surveys and drilled eight 'packsack' holes (386 m) on the showing.

Channel samples from Trench 3 returned up to 2.49% Cu, 0.02% Pb, 0.02% Zn and 3.18 oz/ton Ag over a width of 2.7 m.

Diamond drilling returned the following highlights:

Ddh	Width (m)	Cu (%)
1	1.5	0.64
2	2.6	0.20
3	5.8	0.67
4	11.0	0.90
6	-	-
7	3.0	0.70
8	7.6	0.66
9	2.4	0.74

As well, prospecting located several chalcocite-galena bearing boulders. Grab samples from these returned up to 0.20% Cu, 5.4% Pb and 0.10% Zn.

In 1978, the area was included in a program by Agip Canada that comprised an airborne INPUT and magnetometer survey, lake water and sediment sampling, prospecting and geological mapping.

Geology and Mineralization: The Rafuse Lake showing is hosted within 'metaconglomerate' (metamorphosed red-beds ? - author) of the Wollaston Group. These rocks are cut by younger pegmatite dykes. Mineralization comprises disseminated malachite, chalcocite, native copper and magnetite; chalcopyrite, covellite, bornite and neodigenite are rare.

Several boulders of 'metaconglomerate' in the vicinity of the Rafuse showing contain predominant galena as disseminations and layers; chalcocite is subordinate. Pyrite and sphalerite are rare. A source for these boulders has not been found to date.

References: Pyke and Partridge (1967), Rath (1969), Rath and Morton (1969), Scott (1973), SEM Assessment Files 74-A-0013, 74-A-15-0004, -0006, -0014, -0020, -0021, -0022, -0023, -0034, -0035, -0036, SMI-1018

74-B-07-SE

Name: **Holmlund (Blob) Lake**

Location: About 3.2 km east of Holmlund Lake (location 73, Fig. 5)

History and Development: In 1969, the Sunlite Oil Company Ltd. carried out an airborne EM and radiometric survey over the area. During ground checking the company discovered two gossans, 0.4 and 3.2 km east of Blob Lake. A ground EM survey was completed; four trenches and four drill

holes (411 m) were also reported. The only significant mineralization was encountered in hole 2, which returned 0.88% Cu and 0.17% Zn over 1.5 m.

Geology and Mineralization: The area of the showing is underlain by a narrow belt of biotitic gneisses and intercalated calc-silicates. Mineralization comprises mainly pyrrhotite and pyrite with minor chalcopyrite.

References: Munday (1977), SEM Assessment File 74-B-02-0005, SMI-1059

74-G-05-SW

Name: **Moss (Pooky) Lake**

Location: About 3.2 km east of Moss Lake (Location 74, Fig. 5)

History and Development: In 1962, J. Slater and B.R. Richards conducted a ground EM and magnetometer survey in the area of an aeromagnetic high. A boulder of hematite-bearing andesite was found that assayed 1.04% Cu, 0.22 oz/ton Au and 41.5% Fe. No further work was done until 1966, when Rapid River Resources acquired a permit over the area and during 1966-69 carried out geological mapping, ground EM and magnetometer surveys and diamond drilling. The drill holes frequently encountered narrow sulphide zones, but the only interesting mineralization was reported from holes 20 and 20A (183 m), which intersected 0.85% Cu and 0.06 oz/ton Ag over 1.5 m.

The permit lapsed in 1969 and was immediately restaked by the Inexco Mining Company who carried out EM and geochemical surveys and geological mapping and drilled two holes (101 m) in 1970. The holes returned negligible results and the permit was allowed to lapse in 1971. SMDC restaked the property in 1973 and optioned the property to Golden Eagle Oil and Gas Resources. During 1979-81, Golden Eagle carried out airborne VLF-EM, magnetometer and radiometric surveys, ground EM and magnetometer surveys, prospecting and geochemical sampling (lake sediment, water and soil) and drilled seven holes in the general area.

Geology and Mineralization: The showing is hosted within metasediments of the Virgin River Domain. These comprise mainly garnet-biotite gneisses, quartzites and calc-silicates.

Mineralization is formed by disseminated blebs and stringers of pyrite and pyrrhotite together with minor chalcopyrite.

References: SEM Assessment Files 74-F-01-0003, 74-G-04-0004, -005, -0006, 74-G-05-0007, -0011, -0040, -0043, -0048, -0050, SMI-1117

74-N-10-NW

Name: **Dianne (Dianna) Lake**

Location: Immediately west and northwest of Dianne Lake, a small lake about one kilometer east of Garry Lake (Location 1, Fig. 15)

History and Development: In 1968 prospectors W. Buller and A. Sjolander, working on behalf of Consolidated Skeena Mines Ltd., discovered low grade copper (and, subsequently, high grade native silver) mineralization at Dianne Lake. During 1967-69, Consolidated Skeena carried out an airborne radiometric survey, prospecting, trenching, geological mapping, soil sampling, ground magnetometer, EM and IP surveys and drilled 50 holes (6,888 m). Some of the drill results follow:

Ddh	Width (m)	Cu (%)	Ag (oz/ton)
4	7.3	0.64	4.14
8	5.5	0.73	0.55
14	1 8	0.86	0.30
15	8.2	0.81	1.40
16	11.9	0.59	0.64
19	8.5	0.27	0.14
21	4.6	0.65	0.12
25	21.3	0.87	0.59
35	3.0	0.72	0.35
36	1.8	0.70	0.70
37	1.5	0.59	0.30
39	4.0	1.11	0.42
44	1.8	1.93	0.45
47	9.7	0.48	0.40
48	9.4	0.44	0.30

Spectacular silver values were reported from Trench 2 and Pit 2, west of Dianne Lake, i.e. values approaching 1,000 oz/ton and 55 oz/ton respectively.

Also, in 1969, Jamok Ltd. (Mokta Canada) carried out airborne EM and magnetometer surveys, a ground IP survey, geological mapping, prospecting, trenching, and drilled two holes about

600 m northeast of the showing. The holes returned the following:

Ddh	Width (m)	Cu (%)	Ag (oz/ton)
M-1	0.3	-	124.40
-2	1.5	0.65	0.50

The area was also included in airborne EM and magnetometer surveys flown for Pinex Mines in 1971 and SMDC in 1979. F.J. Andrew reported trenching in the area in 1975.

In 1980, Comaplex Resources optioned the property. In 1982, B.P. Scott, of the Saskatchewan Geological Survey, mapped the area and conducted a bedrock sampling program. In 1983, SMDC conducted geological mapping, sampling and VLF-EM and magnetometer surveys and examined previous core.

Geology and Mineralization: The area is underlain by biotitic (and hornblendic) migmatites (part of the Hudsonian (?) White Lake anatectic granite complex), felsic gneisses and cataclasites that are intruded by a swarm of easterly trending diabase dykes. The older rocks are deformed about northeasterly trending open folds.

Mineralization occurs in two principal areas - west of Doug Lake (a small lake immediately north of Dianne Lake) and west of Dianne Lake. West of Doug Lake, mineralization occurs over an area about 200 m by 30 m. West of Dianne Lake, mineralization occurs over an area about 90 m by 4 m.

Mineralization comprises mainly disseminated chalcopyrite, bornite and chalcocite; niccolite, erythrite and annabergite are locally conspicuous. Argentite is rare. There is no visible native silver .

Drill results imply that the copper(-silver) mineralization occurs as a) concentrations conformable with the sub-horizontal gneissosity, and b) fillings in ENE trending fracture zones (parallel the axial planes of the latest folding).

References: Scott (1982, 1988), SEM Assessment Files 74-N-10-0350, -0365, -0478, -0512, -0520, -0521, 74-N-11-0058, SMI-1348

Name: **Lake (Webb Lake S)**

Location: South shore of Rae Bay (south arm), Webb Lake (Location 2, Fig. 15)

History and Development: Prospecting and mapping were carried out in the area of the showing in 1949-52 by Beta Gamma Mines. Commercial Minerals Ltd. reported further geological mapping in the area in 1956. During 1967-69, Consolidated Skeena Mines Ltd. carried out an airborne radiometric survey, prospecting, trenching, geological mapping, soil sampling, ground magnetometer, EM and IP surveys and drilled 50 holes in the general area (mainly in the vicinity of Dianne Lake).

During 1968-69, Norex Uranium Ltd. carried out prospecting, geological mapping, trenching, soil sampling, radiometric and IP surveys and drilling.

In 1969, Alscope Consolidated Ltd. discovered the showing and performed trenching and drilled one (?) hole. One trench sample returned 0.22% Cu over 3.0 m.

Also in 1969, Jamok Ltd. carried out an airborne EM and magnetometer survey, geological mapping, prospecting, trenching, sampling and IP surveys and drilled two holes in the general area. The area was included in an airborne INPUT and magnetometer survey by SMDC in 1979.

Geology and Mineralization: The area is underlain by northeast trending "Tazin Group" para- and orthogneisses with intercalated concordant bands of amphibolite (may include Archean basement and Lower Proterozoic supracrustals). These rocks are cut by major northeast trending faults and minor easterly and southeasterly trending faults and fractures.

Mineralization comprises chalcopyrite (and malachite) that occurs as disseminations in the paragneisses and in east-northeast trending faults and fractures.

References: SEM Assessment Files 74-N-10-0022, -0040, -0182, -0360, -0363, -0364, -0365, -0509, SMI-1353

Name: **Pete (Webb Lake N)**

Location: North shore of north arm of Webb Lake (Location 3, Fig. 15)

History and Development: Prospecting and mapping were carried out in the area of the showing in 1949-52 by Beta Gamma Mines. During 1967-69, Consolidated Skeena Mines Ltd. carried out an airborne radiometric survey, prospecting, trenching, geological mapping, soil sampling, ground magnetometer, EM and IP

surveys and drilled 50 holes in the general area (mainly in the vicinity of Dianne Lake).

The Webb Lake N showing was discovered by prospectors P. Leontowicz and son, working on behalf of Norex Uranium Ltd. in 1968. During 1968-69, Norex carried out prospecting, geological mapping, trenching, soil sampling, radiometric and IP surveys and drilling.

Trenching revealed a 0.6 m thick 'band' of chalcopyrite. The trench was not sampled but was estimated to contain 5% Cu over 3 m.

In 1969, Alscope Consolidated Ltd. performed trenching and drilled seven short holes (104 m) along the lakeshore. Drilling returned the following:

Ddh	Width (m)	Cu (%)	Ag (oz/ton)
1	1.8	0.56	0.30
2	2.4	0.31	Tr
3	1.5	0.47	-
4	1.2	0.42	-
5	1.8	0.66	0.25
6	-	-	-
7	1.5	0.42	-

Also in 1969, Jamok Ltd. carried out an airborne EM and magnetometer survey, geological mapping, prospecting, trenching, sampling and IP surveys and drilled two holes in the general area. The area was included in an airborne INPUT and magnetometer survey by SMDC in 1979.

Geology and Mineralization: The area is underlain by a monotonous sequence of northeast trending "Tazin Group" para- and orthogneisses with intercalated concordant bands of amphibolite (may include Archean basement and Lower Proterozoic supracrustals) that are invaded by swarms of easterly trending diabase dykes.

References: SEM Assessment Files 74-N-10-0022, -0040, -0182, -0360, -0363, -0364, -0365, -0509, SMI-1354

74-N-11-NE

Name: **Bob Lake**

Location: North and south shores of Bob Lake, a small lake about 1,000 m east of Thluicho Lake (Location 4, Fig. 15)

History and Development: The area was originally staked in 1935 by Sterling Colleries, Limited who reportedly did some drilling on the property. Great West Uranium Mines, Limited restaked the ground as the Con, Cess, Nip and Tuck claims in 1949-51. Great West carried out trenching and drilled ten holes (576 m) on the 'North' zone and eight holes (744 m) on the 'South' zone.

On the 'North' zone, three channel samples assayed 8.6% Cu, 5.2% Cu and 7.3% Cu over 1.5 m widths; drilling returned up to 1.76% Cu, 0.30 oz/ton Ag and 0.02 oz/ton Au over 2.6 m (hole 1). On the 'South' zone, drilling returned up to 2.2% Cu, 1.3% Pb, 0.4% Zn and 0.80 oz/ton Ag over 3.0 m (hole 6).

In 1953, C. Humpke carried out geological mapping and a geiger counter survey in the area. In 1963, N. Jeppeson staked the Starlight claims over the area and optioned them to Gunnex Mines Ltd. During 1963-64, Gunnex conducted geological mapping, trenching and sampling in the general area.

The area of the showing was included in airborne EM and magnetometer surveys flown for Mokta Canada and Pinex Mines in 1969 and 1971 respectively. No further work has been reported on the property to date.

Geology and Mineralization: The area is underlain to the east by "Tazin Group" banded, red quartzofeldspathic gneisses that are unconformably overlain (?) to the west by metaconglomerates, meta-arenites and meta-argillites of the Aphebian (?) Thluicho Lake Group. These rocks are intruded by easterly trending post-tectonic diabase dykes. The prominent easterly trending Gulo-Maimann Lakes Fault lies in close proximity to the showings.

Mineralization comprises (malachite, azurite), chalcopyrite, bornite and minor chalcocite and pyrite. The minerals occur as disseminations in both gneisses and Thluicho Group rocks and within veinlets and stringers of quartz and calcite.

References: Beck (1959), Scott (1978), SEM Assessment Files 74-N-11-0003, -0007, -0008, -0058, SMI-1498, -1499

Name: **Ellis Bay NE (Showings 1 to 5)**

Location: About 1,500 m north of the east end of Ellis Bay, Lake Athabasca (Location 5, Fig. 15)

History and Development: The showings were discovered in 1968 (?) by prospector R. Leighton and staked by Adora Mines Ltd. that year. During

1969-72, Pinex Mines Ltd. carried out airborne EM and magnetometer surveys, ground EM and IP surveys, considerable trenching and drilling on the property. During this period, Adora Mines conducted geological mapping.

Trench results from the showings include the following:

Showing	Width (m)	Cu (%)
1	5.2	0.78
4	21.3	1.15
5	10.2	0.96

Six drill holes (305 m) were completed on the showings. Drill results include the following:

Ddh	Width (m)	Cu (%)
2	2.7	0.34
3	4.1	1.93
	4.9	0.55
6	5.6	0.44
7	7.9	0.44

Mokta Canada flew an airborne EM and magnetometer survey over the area in 1969.

Geology and Mineralization: The area is underlain by "Tazin Group" quartzofeldspathic gneisses and mylonites that are unconformably overlain (?) to the south by metaconglomerates, meta-arenites and meta-argillites of the Aphebian (?) Thluicho Lake Group.

Mineralization occurs in lenses and zones of disseminated grains within the older gneisses and mylonites. Chalcopyrite predominates together with pyrite and malachite. Minor bornite and galena also occur.

References: Scott (1978), SEM Assessment Files 74-N-10-0350, 74-N-11-0002, -0004, -0051, -0058, -0063, SMI-1506

Name: **Ellis Bay NW (Showings 7 to 9)**

Location: About 1,250 m north of Ellis Bay, Lake Athabasca (Location 6, Fig. 15)

History and Development: The showings were discovered in 1968 (?) by prospector R. Leighton and staked by Adora Mines Ltd. that year. During 1969-72, Pinex Mines Ltd. carried out airborne EM and magnetometer surveys, ground EM and IP surveys, considerable trenching and drilling on the property. During this period, Adora Mines conducted geological mapping. Trench results from the showings include the following:

Showing	Width (m)	Cu (%)
7	11.0	0.34
8	3.0	0.39
9	4.0	0.76

Mokta Canada flew an airborne EM and magnetometer survey over the area in 1969.

Geology and Mineralization: The area is underlain by Thluicho Lake Group meta-arkoses and meta-argillites. The latter rocks unconformably overlie "Tazin Group" gneisses and mylonites.

Mineralization is hosted within the Thluicho Lake rocks and is formed by chalcopyrite, pyrite and malachite with minor bornite and galena.

References: Scott (1978), SEM Assessment Files 74-N-10-0350, 74-N-11-0002, -0004, -0051, -0058, -0063, SMI-1507

Name: **Ellis Bay S (25 Zone)**

Location: About 300 m north of Ellis Bay, Lake Athabasca (Location 7, Fig. 15)

History and Development: During 1969-72, Pinex Mines Ltd. carried out airborne EM and magnetometer surveys, ground EM and IP surveys, considerable trenching and drilling on the property. During this period, Adora Mines conducted geological mapping.

The showing was discovered in 1971 (?) by Pinex Mines Ltd. who emplaced approximately 50 trenches and drilled five holes (768 m) on the 25 Zone. Trench samples returned up to 1.23% Cu, nil Ag and 0.01 oz/ton Au over 7.0 m. Drill results include the following:

Ddh	Width (m)	Cu (%)
10	3.0	0.49
11	3.0	0.15
12	6.1	0.27
13	18.3	0.29
14	3.0	0.17

Mokta Canada flew an airborne EM and

magnetometer survey over the area in 1969.

Geology and Mineralization: The area is underlain by an 'inlier' of "Tazin Group" felsic gneisses and mylonites that are overlain by surrounding Thluicho Lake Group rocks. The older rocks occupy the core of an easterly trending, early isoclinal fold. A swarm of easterly trending diabase dykes invade the area and form the youngest rocks.

Mineralization comprises a) sulphide (and quartz-sulphide) lenses and disseminations conformable to the mylonitic fabric in the older gneisses, and b) fracture fillings. Chalcopyrite and pyrite predominate; malachite, quartz, calcite and fluorite are often present, especially within easterly and southeasterly trending fracture zones.

References: Scott (1978), SEM Assessment Files 74-N-10-0350, 74-N-11-0002, -0004, -0051, -0058, -0063, SMI-1508

Name: **Hearn (Munn) Lake E**

Location: Immediately northeast of Hearn (Munn) Lake (Location 8, Fig. 15)

History and Development: Great West Uranium Mines, Limited staked the ground as the Con, Cess, Nip and Tuck claims in 1949-51 and discovered the showing in 1952 during a prospecting and mapping program. Great West conducted trenching, sampling and drilled three holes (243 m) on the showing.

Drill holes EHE-1 returned 8.10% Cu over 0.3 m and EHE-3 returned 0.82% Cu over 0.3 m. Hole EHE-2 did not encounter any significant mineralization.

The area of the showing was included in airborne EM and magnetometer surveys flown for Mokta Canada and Pinex Mines in 1969 and 1971 respectively. The area was included in a further airborne INPUT and magnetometer survey by SMDC in 1979. No further work has been reported on the showing to date.

Geology and Mineralization: The area is underlain by "Tazin Group" quartzofeldspathic gneisses that are cut by a northeasterly trending (?) chloritic fault/shear zone. Mineralization comprises chalcopyrite and minor bornite within narrow hematitic quartz-filled stringers and fractures that are related to the fault zone.

References: Beck (1959), SEM Assessment Files 74-N-11-0003, -0022, -0058, -0094, SMI-1497

Name: **Maimann Lake**

Location: About 300 m south of the westernmost bay in Maimann Lake (Location 9, Fig. 15)

History and Development: The showing was discovered during a prospecting program by North American Rare Metals Ltd. in 1969. This company conducted trenching and sampling that year.

Trench sampling (No. 1 trench) on the showing returned 1.61% Cu over a width of 7.3 m. This included a section that returned 7.69% Cu over 1.2 m.

In 1971, Pinex Mines conducted an airborne EM and magnetometer survey and prospecting and sampling in the general area. No further work has been reported on the showing to date.

Geology and Mineralization: The area is underlain by mylonites ("Tazin Group" ?) that are cut by easterly trending diabase dykes and fracture zones. Mineralization comprises chalcopyrite that is disseminated through the rocks and concentrated into quartz-filled fractures.

References: SEM Assessment Files 74-N-11-0002, -0022, -0023, -0047, -0058, -0068, -0069, SMI-1494

Name: **Pring (Dragon) Lake NE**

Location: Northwest shore of Pring Lake, about 500 m southwest of the northeast end (Location 10, Fig. 15)

History and Development: In 1967, Noram Resources Ltd. staked the adjacent area and carried out prospecting and trenching during 1968-69. In 1968, Consolidated Skeena Mines Ltd. carried out prospecting and sampling in the Pring Lake area. In the same year, Mokta Canada Ltd. performed an airborne EM, magnetometer and radiometric survey over the area. In 1969, Jamok Ltd. carried out an airborne magnetometer survey, geological mapping, trenching, sampling, ground magnetometer and IP surveys and drilled seven holes in the general area.

Drill hole Pri-2, drilled on the showing, returned 0.40% Cu and 0.20 oz/ton Ag over 4.9 m.

No further work was reported until 1979, when SMDC carried out an airborne INPUT and magnetometer survey over the area.

Geology and Mineralization: The area is underlain by "Tazin Group" quartzofeldspathic gneisses cut by a northeasterly trending fault. Mineralization comprises chalcopyrite as disseminations within the fractured gneisses and within quartz-filled fractures.

References: SEM Assessment Files 74-N-10-0350, 74-N-11-0005, -0022, -0047,-0048, -0050, -0094, SMI-1490

Name: **Pring (Dragon) Lake SW**

Location: About 150 m southwest of Pring Lake (Location 11, Fig. 15)

History and Development: Great West Uranium Mines, Limited staked the ground as the Con, Cess, Nip and Tuck claims in 1949-51 and conducted prospecting and mapping during 1952. In 1967, Noram Resources Ltd. staked the area and carried out prospecting and trenching during 1968-69. This work led to the discovery of the showing; the best trench sample returned 0.51% Cu over 7.6 m.

In 1968-69, several other companies conducted work in the area. Jamok Ltd. carried out an airborne magnetometer survey, geological mapping, trenching, sampling, ground magnetometer and IP surveys and drilled seven holes. Mokta Canada Ltd. performed an airborne EM, magnetometer and radiometric survey. Consolidated Skeena Mines Ltd. carried out prospecting and sampling.

Geology and Mineralization: The area is underlain by "Tazin Group" quartzofeldspathic gneisses. Mineralization comprises chalcopyrite as disseminations within mylonite and within quartz-filled fractures (in association with pyrite and hematite) in a northeasterly trending fault zone.

References: SEM Assessment Files 74-N-11-0003, -0022, -0047,-0048, -0050, -0094, SMI-1493

Name: **Thluicho Lake E**

Location: About 1,600 m east of Thluicho Lake (Location 12, Fig. 15)

History and Development: The area was originally staked in 1935 by Sterling Colleries, Limited who reportedly did some drilling on the property. Great West Uranium Mines, Limited restaked the ground as the Con, Cess, Nip and Tuck claims in 1949-51. Great West carried out trenching and drilled eighteen holes (1,320 m) on the Bob Lake showings. In 1953, C. Humpke carried out geological mapping and a geiger counter survey in the area.

In 1963, N. Jeppeson discovered the showing and staked the Starlight claims over the area. Gunnex Mines Ltd. optioned the claims and conducted geological mapping, trenching and sampling in the area during 1963-64. Trench sampling returned up to 1.02% Cu over 5.5 m.

The area of the showing was included in airborne EM and magnetometer surveys flown for Mokta Canada and Pinex Mines in 1969 and 1971 respectively. No further work has been reported on the property to date.

Geology and Mineralization: The area is underlain to the east by "Tazin Group" banded, red quartzofeldspathic gneisses that are unconformably overlain (?) to the west by metaconglomerates, meta-arenites and meta-argillites of the Aphebian (?) Thluicho Lake Group. These rocks are intruded by easterly trending post-tectonic diabase dykes. The prominent easterly trending Gulo-Maimann Lakes Fault lies in close proximity to the showings.

Mineralization comprises disseminated chalcopyrite and bornite over widths up to 7.6 m for a length of 180 m.

References: Scott (1978), SEM Assessment Files 74-N-11-0003, -0007, -0008, -0058, SMI-1501

Name: **Waterloo Lake W**

Location: About 50 m west of the west end of Waterloo Lake (Location 13, Fig. 15)

History and Development: E. Dayman carried out an airborne and ground radiometric surveys in the general area in 1955-56. Dejour Mines conducted further airborne and ground radiometric surveys in the vicinity in 1968. The area was also included in an airborne EM and magnetometer survey flown by Mokta Canada in 1969. Pinex Mines performed an airborne EM and magnetometer survey over the general area in 1971.

The showing was discovered and trenched by E. Hemmingson in 1971. One sample returned 8.75% Cu over a width of 2.4 m. Trenching, mapping and sampling were also reported in 1974. Chip sampling returned 2.24% Cu over 9.1 m from Trench 1 and 2.82% Cu over 8.2 m from Trench 2

(about 20 m southwest of Trench 1).

Geology and Mineralization: The area is underlain by northeasterly trending "Tazin Group" quartzites that are overlain by Thluicho Lake Group rocks. Both older and younger rocks are invaded by easterly trending diabase dykes.

Mineralization comprises predominant chalcopyrite with minor pyrite; malachite, azurite and pyrolusite are locally conspicuous. Chalcopyrite occurs mainly as conformable veins and veinlets within the quartzitic rocks.

References: SEM Assessment Files 74-N-10-0350, 74-N-11-0002, -0023, -0058, -0073, -0077, SMI-1500

Name: **Waterloo Lake S**

Location: About one kilometer south of the southeast corner of Waterloo Lake (Location 14, Fig. 15)

History and Development: The showing was discovered in 1969 by prospectors working on behalf of North American Rare Metals Ltd. That year the company carried out trenching, sampling, geological mapping and a radiometric survey.

Channel samples from the trenches returned 1.91% Cu over 1.2 m, 1.11% Cu over 1.2 m, 0.18% Cu over 1.2 m and 0.46% Cu over 1.2m.

Also in 1969, New Gateway Oils and Minerals Ltd. conducted an airborne radiometric survey, geological mapping and sampling in the general vicinity. The area was included in an airborne EM and magnetometer survey by Pinex Mines Ltd. in 1971.

Geology and Mineralization: The area is underlain by "Tazin Group" mylonites and overlying Thluicho Lake Group rocks. Easterly trending diabase dykes are the youngest rocks in the area.

Mineralization comprises mainly chalcopyrite; marcasite and fluorite have also been reported. Chalcopyrite occurs within northeast trending quartz veins.

References: SEM Assessment Files 74-N-11-0046, -0058, -0071, SMI-1496

74-N-13-SW

Name: **Unger Lake**

Location: About 1.2 km NNW of Unger Lake (Location 89, Fig. 5)

History and Development: In 1969, Asamera Oil Corporation acquired a permit covering the area. That year the company carried out an airborne radiometric survey, a photogeologic study and ground checking. The showing was discovered during the course of the ground checking. One trench sample from the showing returned 1.64% Cu and 0.26 oz/ton Ag over a width of 3.0 m.

Geology and Mineralization: The area is underlain by north-northwest trending "Tazin Group" mylonites that lie west of the major Tazin River Fault.

Mineralization comprises discontinuous stringers of chalcopyrite (and malachite), pyrite and arsenopyrite along a felsic migmatite zone within dark quartzite.

References: SEM Assessment Files 74-N-12-0006, -0007, -0009, SMI-1529

74-O-05-NW

Name: **Roberts Lake**

Location: About 400 m southwest of the southeast end of Roberts Lake (Location 90, Fig. 5)

History and Development: Keno Oils Ltd. first covered the showing with the Vic claims in 1955. Eight drill holes (627 m) were completed and intersected two uraniferous zones. The claims lapsed and the area was restaked by Trans Canada Resources in 1968. During 1968-71, the company conducted an airborne radiometric survey and follow up ground work, which included geological mapping, pitting and trenching and one drill hole (92 m) on the site of the previous drilling.

The drill hole (71-A-1) returned 2.08% Cu, 1.10% Ni, 0.065% U_3O_8, 0.06 oz/ton Au and 0.70 oz/ton Ag over a width of 0.61 m.

The property lapsed in 1972 and was restaked the following year for Trans Canada.

The AE claims were staked over the showing by Kintla Explorations Ltd. in 1974. During 1974-76, Kintla (and Denison Mines) carried out further

stripping, trenching and sampling and geological mapping. Further radiometric prospecting was conducted in 1980. The claims lapsed in 1985.

Remarks: A drill hole (#4) on the GB claims, about 600 m north of the showing, returned 0.23% Cu, 0.01% U_3O_8, 0.10 oz/ton Ag and trace Au over 3.0 m.

Geology and Mineralization: The area is underlain by northwesterly trending "Tazin Group" garnet-biotite gneisses and migmatites. Mineralization, comprising chalcopyrite, pyrite, pyrrhotite and minor molybdenite, occurs within a green, fine grained chloritic fault zone. The latter is related to a major zone of northwesterly trending faulting that passes through the Roberts Lake area.

References: Baer (1969), SEM Assesment Files 74-O-05-0016, -0051, -0065, -0066, -0067, -0077, -0078, SMI-1551

Class 2: Prospects

74-A-09-NE

Name: **Deception Lake**

Location: North shore of the northeast arm of Deception Lake (Location 1, Fig. 6)

History and Development: Prospector D. R. Partridge discovered the showing in September, 1989. Pine Channel Gold Corp. subsequently acquired the property and carried out trenching and sampling and ground magnetometer and EM surveys. In late 1989, Northair Mines optioned the property and, during the winter 1989-90, performed a helicopter-borne geophysical survey and 3,000 m (?) of diamond drilling.

The best reported assay from trench sampling is 3.83% Pb, 3.65% Zn and 0.57 oz/ton Ag over a width of 2.0 m (**The Northern Miner**, Nov. 6, 1989). Initial drill results were disappointing (**Pine Channel Gold Corp**, News Release, Feb. 5, 1990).

Geology and Mineralization: The showing is associated with northeast trending "metapyroxenites, felsic and mafic volcanics" (mainly calc-silicates) within predominantly migmatitic biotite gneisses of the Rottenstone Domain.

Mineralization is reported over a strike length of 800 m and comprises mainly pyrrhotite and pyrite with subordinate galena and sphalerite.

References: News releases (see above), SMI-2166

74-B-06-SE

Name: **Segment Lake**

Location: Easternmost bay of Segment Lake, about 170 km northwest of La Ronge (Location 2, Fig. 6)

History and Development: The showing was discovered during reconnaissance geological mapping by the Saskatchewan Geological Survey in 1972. The Saskatchewan government subsequently created a Crown Reserve around the showing. The same year, B. Richards trenched and sampled the showing. A grab sample returned 2.40% Pb, 0.08% Zn and 0.40 oz/ton Ag. During 1973-74, the Saskatchewan government (under the auspices of DNS, the Department of Northern Saskatchewan) carried out mapping, limited multi-media geochemical and VLF-EM and magnetometer surveys and drilled four holes (285 m).

Diamond drilling indicated a thickness of quartzite of about 4.5 to 6.0 m. Drill hole 1 encountered up to one per cent disseminated galena over a width of a few centimeters. Drill hole 4 returned a value of 0.32% Pb over a width of 4.5 m. Drill holes 2 and 3 did not intersect any mineralization.

Sunlite Oil also performed work in the area in 1973, comprising mapping, trenching and EM surveys. In 1979-80, Golden Eagle Oil and Gas carried out reconnaissance work in the general area. This work comprised prospecting, mapping, sampling, and airborne geophysical surveys. In 1982, SMDC conducted further trenching and sampling in the nearby area.

Geology and Mineralization: The showing is hosted within a quartzitic unit that forms the basal (?) member of a narrow (±100 m) belt of Aphebian (?) metasediments of the Mudjatik Domain. The host quartzites are in immediate contact with mobilized (?) basement granitoid rocks.

Mineralization is formed by disseminated galena with minor pyrite, pyrrhotite and graphite.

References: Pearson (1974), Pearson (1977), SEM Assessment Files 74-B-06-0007, -0010, -0011, -0027, -0032, -0033, SMI-1054

74-H-08-NE

Name: **Marina (Johnson Lake N)**

Location: West shore, northeast end of Johnson Lake (Location 3, Fig. 6)

History and Development: In 1967, Great Plains Development acquired a large permit over the area and, the following year, flew INPUT and radiometric surveys. During follow-up ground work, prospectors J. Bell and T. Ballantyne discovered galena-bearing quartzite in outcrop on the shore of Johnson Lake. Great Plains carried out mapping, prospecting, magnetometer and IP surveys and drilled three holes (233 m) in 1968. In 1970 the company carried out further prospecting, a soil geochemical survey, and drilled six further holes (110 m) northeast of the showing.

Grab samples returned values up to 5.31% Pb, 1.49% Zn and 1.0 oz/ton Ag.

Diamond drilling returned the following results:

Ddh	Width (m)	Pb (%)	Zn (%)	Cu (%)	Ag (oz/ton)
1-68	11.0	1.65	0.42	0.03	0.32
2-68	1.5	1.45	0.59	0.02	0.30
3-70	0.3	7.54	0.38	0.02	1.64

In 1971 the company performed an EM survey over the ice, southwest of the showing, and drilled nine further holes (608 m). (See Johnson Lake Zn showing for further details)

No further work was reported until 1977-79, when Marline Oil Corporation carried out regional programs in the area. This work comprised airborne EM and radiometric surveys, prospecting, mapping and geochemical surveys.

Geology and Mineralization: The showing is hosted within a 3 to 5 m thick quartzitic unit that lies along the northwest flank of the Johnson River granite, an Archean basement inlier. The host quartzites form the basal part of the Aphebian Wollaston Group. They are overlain by about 200 m of variably graphitic psammopelites and pelites.

Mineralization comprises disseminations, layers and fracture fillings of galena; sphalerite and pyrite are locally conspicuous but overall form a minor component. Fluorite accompanies the sulphides in places.

References: SEM Assessment Files 64-E-0005, 64-E-05-0012, 64-E-12-0004, 74-H-0005, -0006, 74-H-08-0006, -0009, -0010, -0022, -0024, -0029, -0030, -0033, -74-H-09-0014, -0019, -0020, SMI-1138

74-N-10-NE

Name: **LeBlanc Lake (Upper Showing)**

Location: About 400 m northwest of the northwest shore of LeBlanc Lake, approximately 20 km north of Uranium City (Location 15, Fig. 15)

History and Development: Early work in the area was carried out by Goldfields Uranium Mines in 1949-50, Athlodge Uranium Mines in 1951, Caba Uranium in 1954 and Consolidated Skeena Mines in 1967-68.

The showing was discovered by Komo Explorations Ltd. in 1969. That year the company carried out a program of trenching and sampling and drilled two holes (63 m).

The best assay from chip sampling in the trenches returned 2.50% Pb and 0.03 oz/ton Ag over 0.9 m (trench 5). The two holes were drilled under trench 5. Drill hole 498-1 returned 2.48% Pb and 0.09 oz/ton Ag over 4.1 m. Drill hole 498-2 returned 1.05% Pb and 0.13 oz/ton Ag over 1.5 m.

No further work was reported until 1979 when the area was included within an airborne INPUT and magnetometer survey by SMDC.

Geology and Mineralization: The showing occurs within paragneisses of the Black Bay Belt. Little is known about the detailed geology.

Mineralization comprises disseminations, pods and narrow stringers of galena and minor sphalerite within altered paragneiss. Alteration is formed by chloritization and sericitization.

References: SEM Assessment Files 74-N-10-0009, -0017, -0022, -0030, -0031, -0355, -0356, SMI-1358

74-N-12-NW

Name: **Harper Lake**

Location: Eastern tip of a small island in the middle of Harper Lake, about 70 km west of Uranium City (Location 5, Fig. 6)

History and Development: Asamera Oil Corporation discovered the showing in 1969. The company carried out an airborne radiometric survey, mapping and trenching during 1969-70. One sample taken at Harper Lake returned 1.5% Pb and 0.25 oz/ton Ag over a width of 3.0 m.

Geology and Mineralization: Minor lead and copper mineralization commonly occurs along the transitional contact between the 'Red Gneisses' and metasedimentary rocks of the Archean (?) Zemlak Block. The sample referred to above was taken from the transition zone.

References: SEM Assessment Files 74-N-0009, 74-N-12-0006, -0007, SMI-1518

Class 1: Former mines, current mines and advanced prospects

73-P-05-SE

Name: **Howard Lake (Little Clam Lake, Nickel Lake)**

Location: Northeast shore of Howard (Nickel) Lake, 30 km northwest of La Ronge (Location 1, Fig. 14)

History and Development: The Howard (Little Clam, Nickel or Rice) Lake nickel-copper deposit was discovered in 1965 by prospector W. Shupe. Kerr Addison Mines Ltd. optioned the property containing the deposit in 1966 and in 1966-67 conducted an electromagnetic survey and drilled nine holes (totalling 660 m); six of these holes were drilled in the immediate vicinity of the showing. The option was subsequently dropped.

In 1969, Canadian Bonanza Petroleums Ltd. and Silver Chief Minerals Ltd. conducted electromagnetic, magnetometer and self potential surveys and detailed geological mapping and drilled 7 holes (totalling 317 m) on the main mineralized zone.

The drilling outlined a zone some 560 m long, 28 m deep and 6.7 m wide. Drill-indicated reserves were reported in October, 1969 as 245,000 tons averaging 1.00% Ni, 0.40% Cu and 0.04% Co. These results reportedly initiated a flurry of staking activity in the area, attracting the interest of Great Plains Development Co. of Canada, New Continental Oil Co. of Canada, and others.

During 1969 to 1971, electromagnetic and magnetometer surveys were conducted and 27 holes (totalling 2,212 m) were drilled over the main zone and other geophysical targets in the area; 17 of these holes (totalling 1,333 m) were drilled on the main zone. Drill-indicated reserves were reported in 1971 as 60,000 tons grading 1.03% Ni, 0.44% Cu and 0.04% Co.

In 1979, Silver Chief Minerals Ltd. conducted a ground magnetometer survey over the property containg the deposit. No further work was reported on the property until 1987, when Epoch Capital Corporation sampled and assayed 1969 drill core.

Geology and Mineralization: The Howard Lake deposit is hosted within a small ultramafic-mafic intrusive body that is enclosed within migmatitic biotite gneisses of the western part of the La Ronge Domain. In the immediate vicinity of the deposit the steeply dipping rocks trend northeasterly. They form part of the 'Birch Rapids Straight Belt', a zone of extreme attenuation and extension that separates the La Ronge Domain from the more westerly lying Rottenstone Domain.

The host sill-like body crops out intermittently over a length of about 300 m (Fig. 38). Drilling indicates the body is up to 15 m wide at the surface, but narrows at depth. It extends to a depth of 24 m at the south end and to a depth of 55 m at the north end of the body. The intrusive comprises gabbro, pyroxenite, hornblendite and serpentinite.

Massive sulphide mineralization is localized near the centre of the wedge-shaped body; it is preferentially hosted within pyroxenite. As well, mineralization occurs as disseminations, interstitial fillings and fracture fillings.

Mineralization is formed by pyrrhotite (60%), nickeliferous pyrrhotite and pentlandite (20%), pyrite (10%) and chalcopyrite (10%). The Ni:Cu ratio is 2.35:1 and Ni:Co ratio is 23:1.

References: Forsythe (1972b), SEM Assessment Files 73-P-05-0003, -0006,-0010, -0012,-0013, SMI-0729

73-P-06-SE

Name: **Mac (National Nickel, Nemeiben Lake)**

Location: East shore of the easternmost bay of Nemeiben Lake, 26 km NNE of La Ronge (Location 2, Fig. 14)

History and Development: The Nemeiben Lake ultramafic complex was first staked for Cominco in 1944. The following year Cominco conducted mapping, trenching, sampling, a magnetometer survey and drilled three holes (totalling 124 m). The drilling encountered wide zones of nickel-copper mineralization on the northern margin of the complex. The claims subsequently lapsed and in 1950 A. Studer staked the Mac group of claims.

In 1951 Studer performed a SP survey along the northern contact. The claims were then transferred to Brewis Red Lake Mines Limited, then to the Thompson brothers, who optioned them to the Canadian Nickel Company Limited

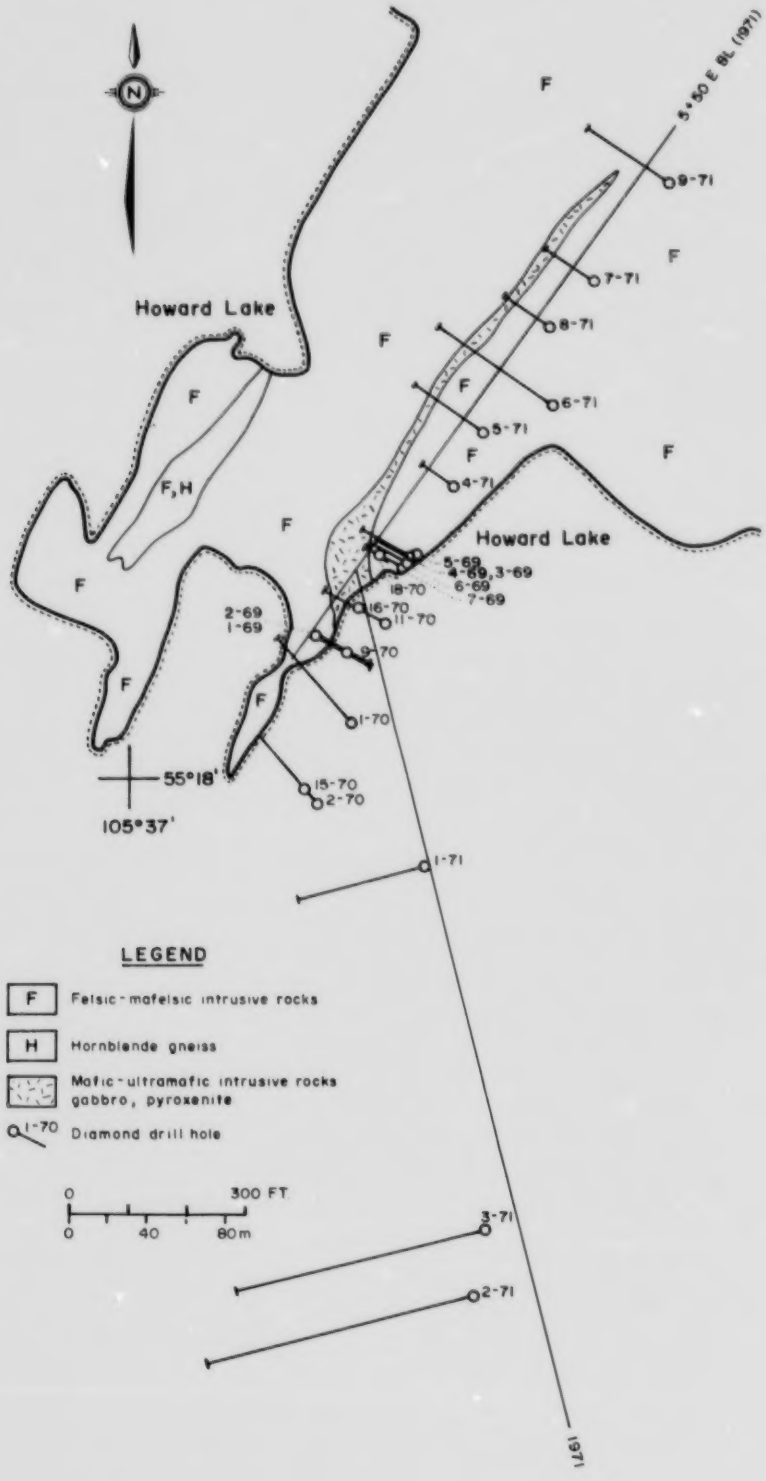


Figure 38. Geology and diamond drilling, Howard Lake deposit (after Forsythe, 1972b and SEM Assessment File 73-P-05-0010).

in 1953. Canico drilled five holes (totalling 1,090 m) along the north contact and dropped the option in 1954.

During 1955-56, Fano Mining and Exploration Inc. performed trenching, mapping and geophysical surveys and drilled 33 holes (totalling 3,521 m) along the north margin. The drilling indicated two nickel-copper zones.

The property lapsed in 1966 and was restaked as the Nib and Ben claims (later ML 5196) for Dunlop Mining Limited. Dunlop estimated 'drill-proven' reserves of 871,750 tons grading 0.66% Ni and 0.35% Cu from the results of the previous drilling. During 1966-68 Dunlop carried out EM, SP and magnetometer surveys over the claims.

In 1967, Merritt Copper Company Ltd. optioned the property and during 1967-68 drilled 35 holes (totalling about 2,440 m) along the north margin of the complex. In 1968, Merritt changed its name to National Nickel Company Ltd. That year drill-indicated reserves were reported as:

1. Underground:

Proven-Probable:
877,500 tons @ 0.81% Ni, 0.42% Cu

Possible:
688,900 tons

2. Open Pit:
East Zone:
Proven-Probable:
5,476,000 @ 0.34% Ni, 0.18% Cu

West Zone:
Possible:
7,350,000 @ 0.21% Ni, 0.15% Cu

In 1968, National Nickel drilled a further 29 holes (totalling about 4,600 m), performed preliminary metallurgical testing and carried out a geochemical survey over the margins of the complex. The following year, the company drilled nine further holes (2,000 m) to test some of the geochemical anomalies with disappointing results. National Nickel acquired a 49 per cent interest in the property through this work.

In 1970 Dunlop performed a reconnaissance gravity survey over the complex. Drill-indicated reserves, as reported in 1970, are given in Table 14. In 1971, Cadillac Explorations Ltd. acquired Dunlop's 51 per cent interest and, in 1972, Studer Mines entered into an option agreement with Cadillac and National Nickel (later renamed Aberdeen Minerals Ltd.). During 1971-74 Studer performed magnetometer, SP and gravity surveys over the southern part of the complex. In 1973, the Saskatchewan government conducted limited VLF-EM and magnetometer surveys and drilled four holes (totalling 670 m)

Table 14. Drill-Indicated Reserves, Nemeiben Lake

		Tabular Zones			
Category	*Zone*	*Tons*	*%Ni*	*%Cu*	*Width (m)*
Probable	A-B	1,418,950	0.55	0.39	14.9
	C	187,500	1.46	0.31	8.4
	D	77,600	0.98	0.30	8.7
	E	383,200	0.56	0.34	8.8
		2,067,250	0.65	0.37	13.0
Possible	A-B	665,300			
	C	136,000			
	D	13,500			
	E	400,000			
		1,214,800			
		Low Grade Zones			
Probable & Possible	East	5,476,000	0.34	0.18	
Possible	West	7,350,000	0.21	0.15	

Source: Campbell, D.D., Howey, H.O., Chamberlain, J.A. and Gunn, J.D. (1970) Private report by Dolmage Campbell & Associates for Dunlop Mining Company Ltd.

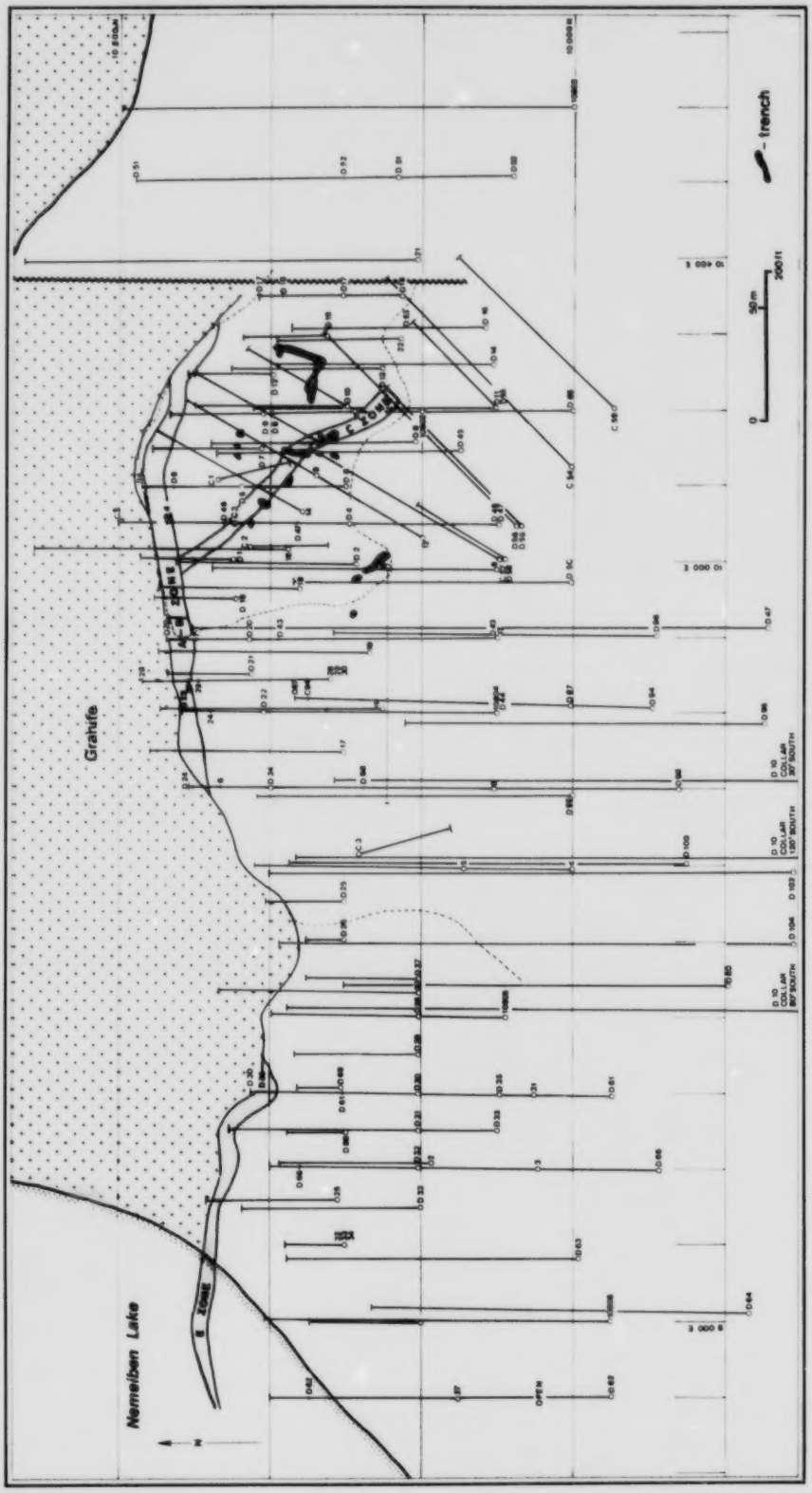


Figure 39. Geology and diamond drilling, Mac deposit, Nemeiben Lake.

on the eastern and western margins with disappointing results.

In 1980, an airborne EM and magnetometer survey was flown over the complex for Golconda Resources Syndicate. In 1981, SMDC (now Cameco) entered into an option agreement with Studer Mines. Later that year Studer assigned its interest to Benz Gold Resources Ltd. In the same year, Benz flew an INPUT survey over the complex.

In 1985, SMDC resampled trenches and drill core for PGE's. The property is currently covered as a joint venture between Benz and Cameco.

Geology and Mineralization: The Nemeiben Lake complex is an approximately circular body, about two kilometres in diameter, that is intrusive into granitoid rocks of the La Ronge 'Horseshoe', in the southwestern portion of the La Ronge Domain. Contacts with the surrounding granitoids are not exposed. Nd-Sm age determinations indicate a Hudsonian age (1.86±.04 Ma) for the intrusive body (Hulbert, 1988).

The complex is crudely layered and comprises mainly tholeiitic, high-alumina, pyroxene-cumulate rocks. Websterite predominates; wehrlite and subordinate dunite form interlayers. All the rocks are extensively serpentinized.

The complex is believed to be funnel-shaped and possibly plunges steeply to the west.

Two principal areas of mineralization occur along the northern margin of the complex. Here, mineralization is concentrated in pyroxenite layers, close to the granitoid contact. Known mineralization covers an area of about 460 m by 120 m on the surface. It comprises relatively higher grade layers, or zones, averaging 0.75 to 1.0% Ni and 0.5% Cu, flanked by lower grade material averaging about 0.3% Ni and 0.2% Cu.

The higher grade zones form sinuous, discontinuous layers ranging in thickness from 3 to 15 m (Fig. 39). They exhibit sharp boundaries. The A-B Zone (and its westerly extension (?), the E Zone) lies along an embayment in the contact. It trends easterly and dips south. The C and D Zones lie deeper in the complex. They trend southeasterly and dip southwest.

The lower grade material extends up to 120 m from the granitoid contact. This material, and incorporated higher grade zones, form two mineralized zones known as the East and West Zones respectively.

The East Zone is 150 m long, 60 to 100 m wide and at least 150 m deep. It plunges 45 degrees to the southwest. The West Zone is 180 m long, 100 m wide and extends at least 100 m deep.

Primary mineralization is formed by nickeliferous pyrrhotite, pentlandite and chalcopyrite as primary magmatic disseminations, veinlets, blebs and discontinuous bands near the outermost margin. Minor magnetite and chrome spinel occur in dunite and peridotitic hosts. In altered host rocks, the (hydrothermal ?) sulphides comprise pyrite, marcasite, violarite, millerite and chalcopyrite. Chalcopyrite is replaced by bornite and native copper in the most highly altered rocks.

References: Beck (1959), Forsythe (1971), Hulbert (1988), Macfarlane and Mossman (1981, 1982), Pearson (1957), Saskatchewan Geological Survey (1987), SEM Assessment Files 73-P-06-0003, -0006, -0011, -0036, -0041, -0050, -0051, -0054, -0062, -0068, -0071, -0072, -0085, -0090, SMI-0749

73-P-15-SW

Name: **Gochager Lake**

Location: Approximately 0.4 km northeast of the north end of Gochager Lake, a lake about 80 km NNE of La Ronge (Location 3, Fig. 14)

History and Development: Extensive zones of pyrrhotite-pyrite-graphite were first reported in the vicinity of Gochager Lake in 1959 by W.J. Pearson and E. Froese. They had mapped these conformable zones during geological investigations for the Saskatchewan Geological Survey in 1957-58.

The Ivy claims were staked over a mineralized gabbro body by Scurry-Rainbow Oil Limited in 1965. During 1965-68, the company conducted geological mapping, ground magnetometer, electromagnetic and induced polarization surveys and carried out more than 27,500 m (?) of drilling. The latter outlined a mineralized body 61 to 122 m wide, to a depth of 305 m. Reported estimated reserves are 4,262,400 tons grading 0.30% Ni and 0.08% Cu, available for open pitting, and a further 876,200 tons grading 0.39% Ni and 0.09% Cu below the open pit limits.

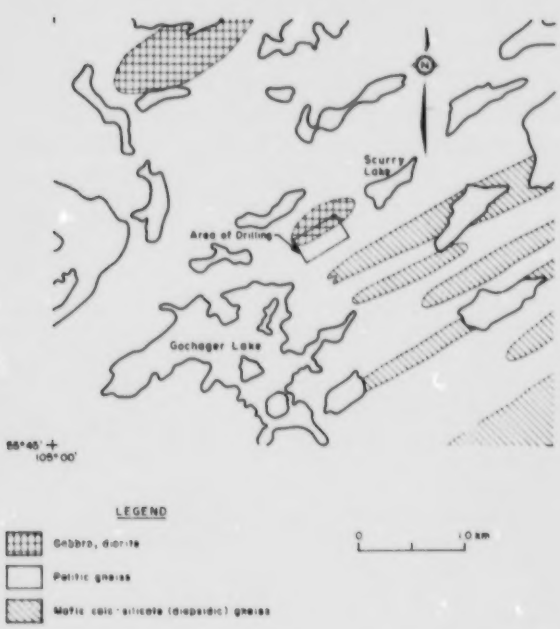


Figure 40. Geology in the vicinity of the Gochager Lake deposit (after Pearson and Froese, 1959).

No further work was reported on the property until 1986, when O'Brien Exploration Services conducted prospecting, sampling and ground magnetometer and VLF-EM surveys over claims covering the deposit. The deposit is currently covered by S-97966.

In 1989, McNickel Inc. optioned the property. Revised reserves have been reported at 1,700,000 tons grading 0.74% combined nickel and copper (**The Northern Miner**, Nov.6, 1989).

Geology and Mineralization: The Gochager Lake deposit is hosted within an ultramafic-mafic sill-like body that is intrusive into Aphebian supracrustals of the Crew Lake Belt (western part of the La Ronge Domain).

The surrounding supracrustals comprise predominantly greywacke-derived biotitic psammopelites with intercalations of amphibolitic horizons that include significant proportions of calc-silicate rocks in places (Fig. 40). Extensive horizons of pyrrhotite-pyrite-graphite (sulphidic iron formation) occur throughout the sequence, especially in association with calc-silicate units.

The mineralized intrusive body is approximately 1000 m long by 300 m wide. It comprises "gabbro", "hornblendite" and "quartz-diorite" phases. According to Hulbert (1986), the pre-alteration host rocks are norites, websterites, feldspathic websterites and minor amounts of harzburgite.

Mineralization is formed by disseminated to massive pyrrhotite, nickeliferous pyrrhotite, chalcopyrite and pyrite.

References: Hulbert (1986), Pearson and Froese (1959), Saskatchewan Geological Survey (1987), SEM Assessment Files 73-P-11-0018, 73-P-15-0012, -0023, SMI-0880

74-A-07-SW

Name: **Rottenstone Mine (Hall Deposit)**

Lcation: Southeast shore of Rottenstone Lake, approximately 145 km NNE of La Ronge (Location 4, Fig. 14)

History and Development: Although the Hall showing was known about since the early part of the century, it was not staked until 1928 by Messrs. G. and R. Hall. In the same year, the property was optioned to the Consolidated Mining and Smelting Company of Canada Ltd. In 1928-29, Cominco drilled 15 holes in the vicinity of the showing, outlining a deposit approximately 55 m long, 37 m wide and 9 m thick with estimated reserves of 40,000 tons grading 1.81% Ni and 1.01% Cu.

The property was allowed to lapse. In 1946, J.B. Mawdsley mapped the area around the Hall deposit on behalf of the Geological Survey of Canada. In 1951 Cape Copper Mines Ltd. acquired the property and in 1951-53 conducted detailed geological mapping, a ground magnetometer survey and 228 m (14 holes) of diamond drilling. Beck (1959) reports a probable additional 107 m of diamond drilling which was not reported to the Saskatchewan Department of Mineral Resources. In 1954,Trans Dominion Mining and Oils Corporation acquired the property and performed an airborne magnetometer survey and 874 m (19 holes) of diamond drilling.

In 1957-61, Sico Mining Corporation Limted conducted trenching, ground magnetometer and electromagnetic surveys and drilled 33 holes on, and in the vicinity of, the deposit; nine of the holes were drilled on the deposit.

The property was allowed to lapse again and was restaked in 1962 by B.R. Richards, who drilled two short holes (totalling 21 m). In 1964, Bison Petroleum and Minerals Ltd. and Mid-Can Explorations Ltd. acquired the property. The same year, the companies formed Rottenstone Mining Ltd. (Bison 55%; Mid-Can 45%) and in 1965 commenced mining the deposit by a small pit at 125 tons per day.

Reserves were reported in 1965 at 50,000-60,000 tons grading 2% Ni, 2% Cu, 0.22 oz/ton Pt and 0.15 oz/ton Pd (**The Northern Miner**, April 15,1965).

The mine operated from 1965 to 1968 with approximately 28,724 tons of Ni-Cu-Pt-Au-Ag ore extracted to produce 5,564 (?) tons of concentrate grading 10.36% Ni, 5.74% Cu, 0.10 oz/ton Au, 0.53 oz/ton Ag, 0.33 oz/ton Pt and 0.53 oz/ton Pd and yielding 1,442,055 lbs Ni, 888,077 lbs Cu, 363 oz Au, 2,929 oz Ag, 2,033 oz Pt and 3,595 oz Pd.

In 1971-1973, Canadian Occidental Petroleum Ltd. explored the vicinity of the Hall deposit, conducting airborne magnetometer and electromagnetic surveys, geological mapping, lake sediment sampling and diamond drilling (4 holes). In 1975, the area surrounding the Hall deposit was mapped by C.F. Gilboy on behalf of the Saskatchewan Geological Survey.

Recent work in the vicinity of the Hall deposit comprised ground magnetometer and electromagnetic surveys by Bec International Corporation, and prospecting, sampling, geological mapping and ground magnetometer and VLF-EM surveys by Fleck Resources Ltd. in 1986, and prospecting and a VLF-EM survey by Partridge Contracting Inc. in 1985-86. C. Dunn conducted some biogeochemical studies over the Hall deposit in 1986-87 on behalf of the Geological Survey of Canada.

In 1988, Claude Resources Inc. acquired the property containing the Hall deposit and conducted ground magnetometer and electromagnetic surveys. The company planned a program of trenching and detailed geological mapping for 1989.

Geology and Mineralization: The Hall deposit is hosted within a small, sill-like ultramafic body within the Rottenstone Domain. Surrounding rocks are mainly northeast trending, northwest dipping migmatitic gneisses: psammopelitic to pelitic biotite gneiss paleosome with

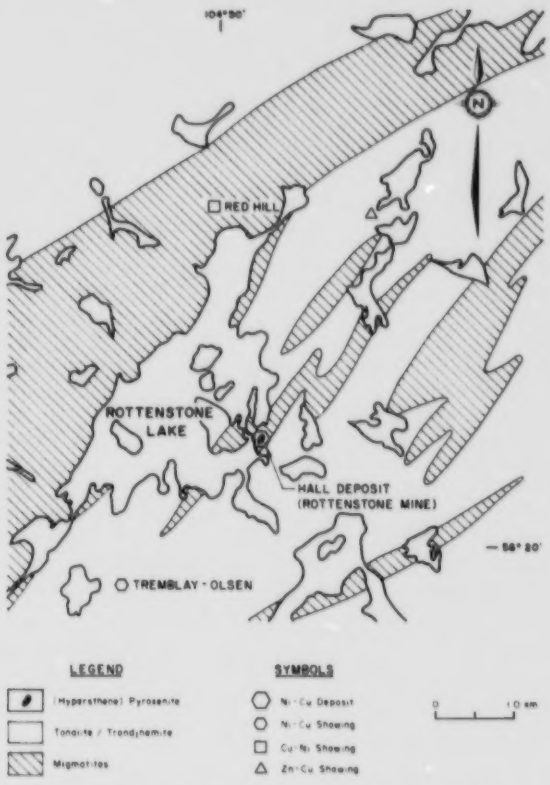


Figure 41. Geology in the vicinity of the Rottenstone mine (after Gilboy, 1982).

tonalite-trondjhemite neosome. The latter forms large bodies throughout the surrounding area (Fig. 41).

The ultramafic body comprises a harzburgite-orthopyroxenite intrusive, approximately 55 m long, 37 to 50 m wide and 8 to 12 m thick. It dips 30 degrees to the east.

Disseminated and net-textured sulphides form approximately 50 per cent of the body. They comprise mainly pyrrhotite, pentlandite, violarite and chalcopyrite. Minor cubanite, sperrylite, sphalerite, magnetite and graphite also occur.

Remarks: The Rottenstone deposit is unique in terms of the contained precious metals. In fact, the ore is better endowed in Pt, Pd and Au than the classic PGE ores of the Merensky Reef and UG2 chromitite horizons of the Bushveld Complex, South Africa.

References: Beck (1959), Dunn (1987), Gilboy (1982), Hulbert (1985,1986), Mawdsley (1946), Richards and Robinson (1966), Sabina (1972),

Saskatchewan Geological Survey (1987), SEM Assessment Files 74-A-07-0001, -0004, -0005, -0007, -0008, -0012, -0017, -0024, -0025, -0026, SMI-0958

74-O-08-SE

Name: **Currie Lake**

Location: Approximately 1.5 km south of the south shore of Currie Lake (Location 1, Fig. 9)

History and Development: Prospector J. Macdonald found the main gossans on the showing in 1955. The following year F. Camsell staked the showing as the BB, Bin and XK claims and, with others, carried out trenching. That year, Canadian Explorations Limited optioned the property and performed trench sampling (which returned assays up to 1.70% Ni and 0.16% Cu over a width of 3.0 m) and a magnetometer survey and, in 1957, drilled four holes (totalling 457 m) on the showing. Only one of the holes intersected significant mineralization. Drill hole C-1 encountered 1.13% Ni, 0.25% Cu, 0.04% Co and 0.43 oz/ton Ag over a width of 5.6 m.

In 1965, Torwest Resources Ltd. acquired the property and completed further sampling and drilled 17 holes (1,521 m); nine of the holes outlined two parallel zones of mineralization, separated by 15 m of barren rock.

Reserve estimates were reported as follows:

Upper Zone: 5,900 tons @ 1.93% Ni over a length of 53 m and to a depth of 12 m

Lower Zone: 42,500 tons @ 0.71% Ni over a length of 87 m and to a depth of 30 m

Combined: 52,400 tons @ 0.79% Ni

Deeper holes under the zones and along their strike extensions failed to extend the zones.

In 1969-70, International Nuclear Corporation carried out reconnaissance work over a large area that included the showing. This work concentrated on uranium and little attention was afforded to nickel. In 1979, and again in 1981-82, SMDC (now Cameco) performed reconnaissance and follow-up studies in the general area. This work comprised airborne INPUT and magnetometer surveys, mapping, prospecting, lake sediment sampling and ground geophysical surveys.

Geology and Mineralization: The deposit is hosted within two narrow, subparallel 'norite' bodies that are intrusive into 'quartzites' and 'greywackes' of the Tantato Domain (see Fig. 44).

The upper (northern) body varies from 3.5 m to 30 m wide. The lower (southern) body varies from 5 to 40 m wide.

Mineralization is formed by disseminations and fracture fillings of pyrrhotite and lesser chalcopyrite.

References: Colborne (1962), SEM Assessment Files 74-O-08-0003, -0004, -0006, -0011, -0022, -0023, -0043, -0049, -0052, -0053, 74-P-14-0004, SMI-1585

74-O-12-NW

Name: **Dinty Lake (Achak)**

Location: 300 m east of the long NNW trending bay of Dinty Lake, a lake about 40 km ENE of Uranium City (Location 6, Fig. 7)

History and Development: The Dinty Lake showing was first staked in 1936 by the Consolidated Mining and Smelting Company's Borealis Syndicate. In 1936-37, the company conducted trenching and drilled 12 holes on the deposit. Exploration and staking reportedly continued to 1942, but no records are available. The work is reported to have indicated reserves of 1,500,000 tons grading 0.60% Ni.
In 1951, Goldfields Uranium Mines Limited restaked the ground as the Achak claims. During 1951-52, the company conducted geological mapping, a ground magnetometer survey and 632 m (10 holes) of diamond drilling. In 1954, the geology of the area surrounding the Dinty Lake deposit was examined by D.A. Blake on behalf of the Geological Survey of Canada.

The property was subsequently acquired by Tremar Minerals Ltd. in 1965, who conducted trenching, sampling and a ground magnetometer survey.

In 1979-80, Sunexco Energy Corporation carried out airborne EM, radiometric and magnetometer surveys and ground EM and magnetometer surveys in the vicinity of the deposit.

No further work was reported on the deposit until 1987 when the geology of the deposit was

examined by L. Hulbert on behalf of the Geological Survey of Canada.

Geology and Mineralization: The Dinty Lake deposit is hosted within a small, north-northwest trending, west dipping, sill-like body of 'norite' that is enclosed in Archean felsic gneisses of the cratonic Nevins Lake Block (Fig. 42). The rocks have suffered granulite facies metamorphism (Kenoran?) that has been subsequently retrogressed (Hudsonian?). The mineralized intrusive itself has yielded an Archean Nd-Sm age of 2.55±.23 Ma (Hulbert, 1988).

The ultramafic-mafic intrusive is at least 300 m long and 65 m wide; it apparently only extends to a depth of 60 m. It is formed by a layered body of anorthosite, anorthositic norite, norite, feldspathic pyroxenite, pyroxenite and metamorphic equivalents.

Magmatic sulphides, comprising pyrrhotite and minor chalcopyrite, sphalerite and cubanite, form semi-massive to massive concentrations. The latter exhibit spherical inclusions of orthopyroxenite and net-textured orthopyroxenite.

The greatest concentration of sulphides is underlain by a thin cumulate layer of orthopyroxenite that is, in turn, underlain by a cumulate layer of plagioclase-orthopyroxene (norite).

References: Beck (1959), Blake(1955), Cooke (1937), Hulbert (1987,1988), Saskatchewan Geological Survey (1987), SEM Assessment Files 74-O-12-0005, -0013, -0044, SMI-1603

74-P-05-SW

Name: **Axis Lake**

Location: Approximately 350 m south of the narrows between Axis Lake and South Axis Lake, about 15 km northwest of Stony Rapids, Fond du Lac, Lake Athabasca (Location 2, Fig. 9)

History and Development: Mineralization was identified in the Axis Lake area as early as 1929 by Dominion Explorers Ltd. In 1929-30, the company reported geological mapping, trenching and sampling. At least five holes are believed to have been drilled during this period.

In 1930 (?) reserves were estimated at

Figure 42. Geology in the vicinity of the Dinty Lake deposit (after Blake, 1955).

3,750,000 tons grading 0.6% Ni, 0.6% Cu and 0.15% Co.

In 1937, E. Harwick performed a geomagnetic survey in the immediate area. The property was allowed to lapse and was restaked by Frederick Mining and Development Limited in 1952. In 1953-55, Frederick conducted a ground magnetometer survey and drilled 38 holes (totalling 3,121 m), outlining two zones to a depth of 45 to 90 m: the East (or Main) Zone, approximatley 1,000 m long and 5.2 m wide with 6,500 tons per vertical foot grading 0.66% Ni, 0.35% Cu and 0.02% Co and a West Zone, approximately 600 m long and 5.9 m wide with 3,880 tons per vertical foot grading 0.56% Ni, 0.10% Cu and 0.02% Co (Fig. 43). In 1957, an airborne EM and magnetometer survey was flown over the area by Aeromagnetic Surveys.

In 1965, Placid Oil Co. carried out a ground EM survey and drilled 12 holes (totalling 2286 m) to test deeper portions of the deposit.

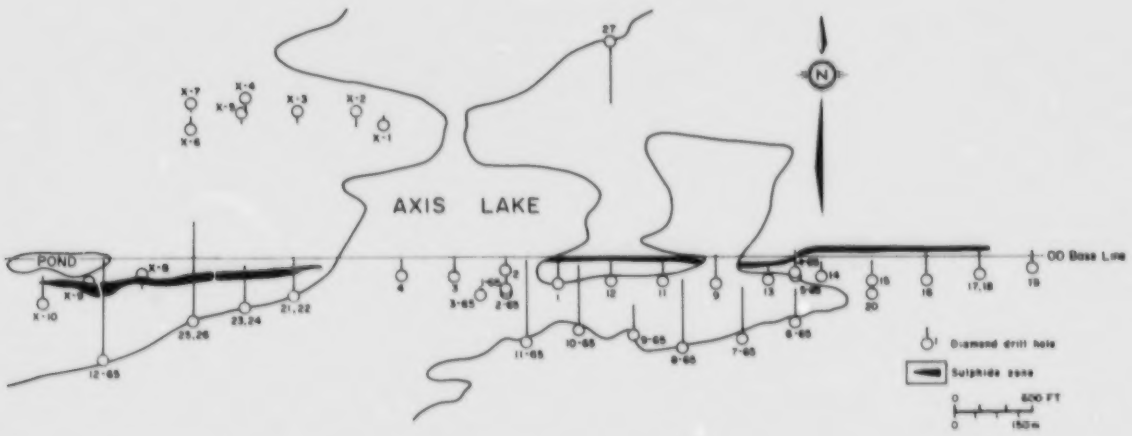


Figure 43. Diamond drilling, Axis Lake (from SEM Assessment File 74-P-05-0006).

The area of the showing was included within reconnaissance exploration by International Nuclear Corporation in 1969. This work included airborne EM, magnetometer and radiometric surveys and an eight-hole drill program in the vicinity of the deposit.

No further work was reported until 1982, when SMDC (now Cameco) conducted prospecting, geological mapping, trenching and sampling (rock and lake sediment) both on, and in the vicinity of, the Axis Lake deposit.

Geology and Mineralization: The Axis Lake deposit is hosted within rocks of the Tantato Domain previously mapped as 'dark grey quartzite' and 'norite'.

The deposit occurs within the apical region of a major, southwesterly plunging synform (Fig. 44) that is occupied by structurally lower, garnetiferous felsic rocks (including iron formation) that are overlain by a sequence of 'metabasites', often referred to in this area as 'norites'. The latter include mafic hypersthene-bearing gneisses and amphibolites that were probably derived from both intrusive and extrusive precursor rocks.

The rocks attained granulite facies metamorphic conditions (Kenoran?) that was overprinted by lower to middle amphibolite facies conditions (Hudsonian?).

Hulbert (1988) notes that the 'noritic' host rock at Axis Lake is clearly a metamorphosed differentiated sill, ranging from norite to orthopyroxenite in composition.

Little is known about the detailed geology of the Axis Lake deposit. The deposit coincides with a marked preferential concentration of massive and net-textured sulphides along the southern margin of a sill-like 'norite' body, i.e. suggesting a north facing direction.

Mineralization comprises disseminated to massive pyrrhotite, pyrite and minor chalcopyrite.

References: Beck (1959), Colborne (1960, 1962), Hulbert (1988), Saskatchewan Geological Survey (1987), SEM Assessment Files 74-O-08-0006, -0022, -0023, -0053, 74-P-05-0001, -0003, -0004, -0006, -0016, -0017, 74-P-14-0004, SMI-1623

Name: **Rea (Carp) Lake**

Location: Between Axis Lake and Rea Lake, about 15 km northwest of Stony Rapids, Fond du Lac, Lake Athabasca (Location 3, Fig. 9)

History and Development: Mineralization was identified in the Axis-Rea Lakes area as early as 1929 by Dominion Explorers Ltd. Apparently, the Rea Lake zone was known at that time. There were few signs of any previous work on the zone when Inexco Mining Company 're-discovered' the zone in 1970.

The area of the deposit was included in an airborne EM, magnetometer and radiometric survey by Inexco in 1969. The following year

Inexco carried out geological mapping, trenching and sampling, geochemical sampling (plugger samples), IP and magnetometer surveys and drilled eight holes (603 m) on the mineralized zone. The work outlined an easterly trending zone at least 2,700 m long, about 30 m thick, and 90 to 240 m wide.

In 1970, Inexco reported total inferred reserves (based on 90 m width) of 26,400,000 tons grading 0.1% Ni and 0.1% Cu and total potential reserves (from 90 m width to 240 m width) of

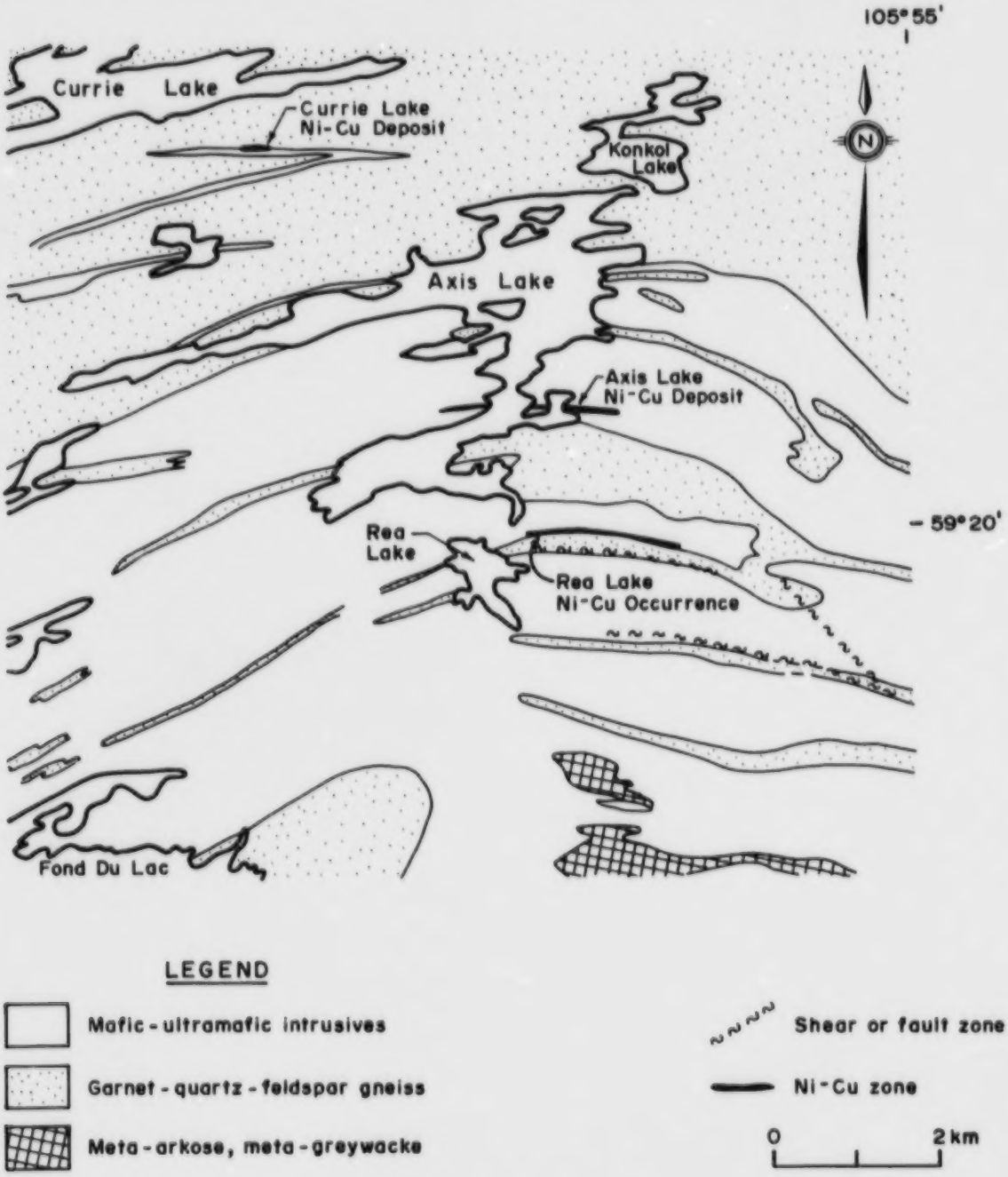


Figure 44. Geology in the vicinity of the Axis Lake, Rea (Carp Lake) and Currie Lake deposits (after Colborne, 1960, 1962).

44,000,000 tons grading 0.1% Ni and 0.1% Cu, i.e. total inferred and potential reserves of 70,400,000 tons grading 0.1% Ni and 0.1% Cu.

No further work was reported until 1982, when SMDC conducted prospecting, geological mapping, trenching and geochemical sampling (rock and lake sediment) in the vicinity of the deposit.

Geology and Mineralization: The Rea Lake deposit is hosted within rocks previously mapped as 'dark grey quartzite' and 'norite' (Fig. 44).

The deposit occurs close to the apical region of a major, southwesterly plunging synform that is occupied by structurally lower, garnetiferous felsic rocks (including iron formation) that are overlain by a sequence of 'metabasites', often referred to in this area as 'norites'. The latter include mafic hypersthene-bearing gneisses and amphibolites that were probably derived from both intrusive and extrusive precursor rocks.

The rocks attained granulite facies metamorphic conditions (Kenoran?) that was overprinted by lower to middle amphibolite facies conditions (Hudsonian?).

The mineralized zone is easterly trending and dips south at 27 to 40 degrees. The host rocks are an upper 'metaquartzite' and a lower serpentinized 'pyroxenite'. Mineralization comprises disseminations, blebs and fracture fillings of nickeliferous pyrrhotite, pyrite and chalcopyrite. These sulphides are 'superimposed' upon a primary, conformable magnetite mineralization. Total sulphide content ranges from one to ten per cent; average magnetite content is about seven per cent.

References: SEM Assessment Files 74-O-08-0022, -0023, -0053, 74-P-05-0001, -0003, -0004, -0016, 74-P-14-0004, SMI-1627

Class 2: Prospects

63-L-09-SE

Name: **Table Lake**

Location: Approximately 75 m east of a small island at the southern end of Table Lake (Location 5, Fig. 14)

History and Development: Early records indicate that the area of the showing was staked and trenched by L. Hirons around 1950. Hirons conducted a ground EM survey over the area in 1957. The property was allowed to lapse and was restaked by Western Nuclear Mines in 1965. The following year, the company carried out ground magnetometer and EM surveys and drilled one hole. In 1968-69, Hudson Bay performed a ground EM survey and drilled five holes in the area of the showing. J.M.B. Canadian Explorations Ltd. conducted a helicopter-borne EM and magnetometer survey in the vicinity. The property was allowed to lapse again and was restaked in 1978 by Granges Exploration AB, who carried out a ground EM survey and drilled four holes. One of these holes (SAM 12-78) encountered weak nickel mineralization which assayed 0.24% Ni and 0.19% Zn over a width of 1.5 m.

In 1982, the area was covered by a regional ground EM and magnetometer survey performed by Hudson Bay. In 1983, Hudson Bay acquired the property containing the showing and, in 1985-87, carried out ground magnetometer and EM surveys.

Geology and Mineralization: The showing is hosted within serpentinized ultramafic rocks that intrude northerly trending Amisk Group mafic volcanics. The host rocks form part of a sill-like body that is about 10 km long and 90 to 300 m wide.

References: SEM Assessment Files 63-L-09-0101, -0106, -0135, -0231, SMI-1871

73-P-10-NW

Name: **Mal Lake**

Location: West shore of Mal Lake, a small lake about one kilometer northeast of the northern part of Hayman Lake (Location 6, Fig. 14)

History and Development: Early recorded exploration in the vicinity of the showing was conducted in 1966-67 by Scurry-Rainbow Mines and Oil Ltd. The latter company carried out ground magnetometer and EM surveys and limited trenching and drilled nine holes.

Drill assays returned the following significant results:

Ddh	Width (m)	Ni (%)	Cu (%)
M2	3.0	1.41	0.35
M3	7.9	1.12	0.24
M6	2.4	0.94	0.20
	6.9	0.93	0.28
M8	9.2	1.08	0.30

Noranda Exploration Co. Ltd. conducted geological mapping and geophysical and geochemical surveys in the area.

No further work was reported until 1987, when the area of the showing was included in an airborne VLF-EM and magnetometer survey flown for Great Bend Resources Corporation.

*Geology and Mineralization:*The showing occurs within a poorly exposed, small body of diorite-gabbro that intrudes biotitic metasediments of the Central Metavolcanic Belt of the La Ronge Domain.

The diamond drilling intersected disseminated to massive pyrrhotite and minor chalcopyrite within the intrusive body.

*References:*SEM Assessment Files 73-P-10-0024, -0033, -0041, -0055, SMI-0836

74-A-08-SE

Name: **Reef Lake**

Location: Approximately 750 m NE of Reef Lake (Location 7, Fig. 14)

History and Development: The area of the showing was originally staked in 1954 by A. Studer. In 1955, the property was transferred to Studer Gold Mines Ltd. (later re-named Studer Mines Ltd.). The latter company conducted prospecting, geological mapping, ground magnetometer and EM surveys and drilled 27 holes (3,095 m) during 1955-59. The diamond drilling returned the following significant results:

Ddh	Width (m)	Ni (%)	Cu (%)
1	9.8	0.66	0.28
2	2.2	0.63	Tr.
5	3.0	0.66	0.05
12	3.8	1.10	0.27
13	0.5	1.18	0.10
20	5.8	0.55	0.25
21	0.9	0.55	0.50

No further work was reported on the showing until 1988, when Durama Enterprises Limited carried out ground magnetometer and VLF-EM surveys.

Geology and Mineralization: The showing occurs within a small (150 m by 60 m) gabbroic-pyroxenitic body that intrudes biotitic metasediments of the Crew Lake Belt, La Ronge Domain. Mineralization comprises disseminated to semi-massive pyrrhotite with minor pyrite and chalcopyrite.

References: Beck (1959), Gracie (1965), SEM Assessment Files 74 A-0005, 74-A-08-0001, -0004, -0005, -0011, SMI-0963

74-G-05-NW

Name: **Westgate Lake**

Location: Approximately 2 km north of the west end of Westgate Lake (Location 12, Fig. 7)

History and Development: The area of the showing was first staked by International Nuclear Corporation in 1965. That year, Phelps Dodge conducted a reconnaissance geological survey in the area. In 1968, Cazun Exploration performed localized ground magnetometer and EM surveys and drilled 10 holes in the general area. International Nuclear carried out airborne magnetometer, EM and radiometric surveys in 1969 and geological mapping and ground geophysical and geochemical surveys, together with a two-hole drill program, in 1970. Uranerz Exploration and Mining conducted a work program in the area in 1974. The property was allowed to lapse and was restaked by Taiga Consultants in 1976. During 1976-79, Western Mines conducted geological mapping, radiometric and geochemical surveys, airborne and ground geophysical surveys and drilled 32 holes (2,447 m) in eight fences over EM conductors in the general area.

Drill hole E-5 returned 1.44% Ni and 156 ppm U over 0.4 m; drill hole E-6 (25 m east of E-5) returned 2.0% Ni and 270 ppm U over 0.5 m.

Uranerz carried out further work in the general area in 1980-81 and again in 1987-88.

Geology and Mineralization: The area is underlain by the Helikian Athabasca Group that, in turn, is underlain by Proterozoic rocks of the Virgin River Domain.

Supergene (?) mineralization was encountered in three closely-spaced holes drilled on Fence E. The mineralization is hosted within regolith and chloritic pelite at the base of the Athabasca Group. It comprises veinlets of niccolite with lesser chalcopyrite, pyrite and pyrrhotite. Millerite and annabergite have also been reported.

References: SEM Assessment Files 74-F-01-0003, 74-G-04-0006, 74-G-05-0007, -0011, -0012, -0013, -0019, -0020, -0021, -0027, -0028, -0029, -0042, -0052, -0058, SMI-2054

74-O-08-SW

Name: **Lad (Cole Lake)**

Location: Southwest end of Cole Lake, 800 m east of Norite Bay, Lake Athabasca (Location 4, Fig. 9)

History and Development: The ground was originally held by Athona Mines, Limited from 1935-37. During 1950-51 Goldfields Uranium Mines, Limited carried out work in the area and staked the Lad claim group in 1951. The work comprised geological mapping, prospecting, sampling, a ground magnetometer survey and drilling (four holes, totalling 55 m).

Trench sampling over an exposed length of 55 m returned the following results:

Trench	Width (m)	Ni (%)	Cu (%)
1-W	0.9	0.42	0.06
1-E	2.3	0.97	0.13
2-E	1.5	0.51	0.15

Diamond drilling returned the following results:

Ddh	Width (m)	Ni (%)
1	7.0	0.45
2	11.3	0.40
3	11.0	0.18
4	4.6	0.65

During 1965-66, the ground was included within a regional prospecting program conducted by M. Hird. In 1969-70, International Nuclear Corporation carried out airborne EM, magnetometer and radiometric surveys, geological mapping and prospecting in the general area.

In 1977, Western Mines performed an INPUT and magnetometer survey and soil and lake sediment geochemical surveys in the area. The following year, a Denison Mines-Western Mines-SMDC joint venture carried out radiometric prospecting and lake sediment sampling. In 1980-81, the area was included in an airborne INPUT and magnetometer survey by Golden Rule Resources and in a geological mapping, ground VLF-EM and magnetometer survey program by Pine Channel Explorers. SMDC performed further mapping, prospecting, trenching and geochemical sampling in the area in 1982. In 1986, Tantato Resources conducted geological mapping, prospecting, trenching and regional geochemical and biogeochemical surveys in the area.

Geology and Mineralization: The showing is hosted within an ENE trending small, sill-like 'norite' body that is intrusive into gneisses of the Archean Tantato Domain. The body is about 12 m wide and can be traced at least 180 m in length. It dips to the south.

Mineralization is formed predominantly by disseminated pyrrhotite. The latter mineral exhibits a concentration along the central portion of the body where it forms a gossaned zone about one meter wide.

References: Beck (1959), Colborne and Rosenberger (1963), Mawdsley (1949), SEM Assessment Files 74-O-07-0006, -0007, -0010, 74-O-08-0014, -0022, -0023, -0046, -0047, -0049, -0053, -0056, 74-P-14-0004, SMI-1583

74-P-06-NW

Name: **Cora Lake**

Location: Southeast shore of the main peninsula, Cora Lake, approximately 1,500 m southwest of the northeast point. Cora Lake is about 27 km northeast of Stony Rapids (Location 5, Fig. 9)

History and Development: In 1954, Dee Explorations Limited carried out an airborne radiometric survey of the Cu claims. During 1954-56, Dee Explorations conducted prospecting and sampling, a dip-needle survey and geological mapping. The work identified low grade nickel-copper mineralization associated with a 'norite' body.

In 1968, North Slave Explorations Ltd. carried out a magnetometer survey and prospecting

over the showing. The following year, Mogar Mines Limited performed EM and radiometric surveys and drilled seven holes (179 m) on the showing.

The drilling returned low nickel and copper values. The best intersections were encountered in holes 2 and 4, which assayed 0.17% Ni and 0.17% Cu over 2.1 m and 0.17% Ni and 0.07% Cu over 3.0 m respectively.

In 1969-70, Inexco Mining Company carried out airborne EM, magnetometer and radiometric surveys, ground EM and magnetometer surveys and drilled two holes in the general area of the showing.

Geology and Mineralization: Mineralization is hosted within two northeast trending, en echelon 'norite' sill-like bodies. The latter extend over a total length of 1,700 m and a width of 30 m. The 'norite' bodies intrude metasediments that include quartzites and meta-argillites.

The drilling tested the mineralization over a length of about 750 m. Mineralization comprises finely disseminated chalcopyrite, pyrrhotite and conspicuous garnierite.

References: Johnston (1963), SEM Assessment Files 74-P-06-0001, -0016, -0019, -0021, SMI-1633

74-P-11-SW & 74-P-12-SE

Name: **Dumas Lake (A, B, C and D Zones)**

Location: Vicinity of Dumas Lake, approximately 50 km north of Stony Rapids. The A and B Zones lie immediately east of Dumas Lake; the C Zone lies about 400 m west of the north end of Dumas Lake and the C Zone lies approximately 1,700 m west of the lake (along the north shore of Thin Lake) (Location 6, Fig. 9)

History and Development: Nickel-copper mineralization was discovered at Dumas Lake in 1956 by G. Bleiler and F. Giaque. That year, Father Lake Development Ltd. acquired the Ni claims and carried out diamond drilling on two of the zones (A and D). Eight holes (406 m) were drilled on the A Zone and nine holes (377 m) were drilled on the D Zone. The holes were mostly drilled at 30 m intervals along strike. Apart from two narrow interesting intersections, only low nickel-copper values were encountered.

In 1969, Pathfinder Uranium and Nickel Mines acquired CBS 2281 that covered the zones and carried out magnetometer and EM surveys and drilled 11 widely spaced holes (899 m) on the B, C and D Zones. The drilling indicated widespread, weakly disseminated pyrrhotite and chalcopyrite mineralization over a zone about 3.2 km long and up to 300 m wide.

Significant results from diamond drilling are as follows:

Zone	Year	Ddh	Width (m)	Ni (%)	Cu (%)
A	1956	2	2.0	1.33	0.94
B	1969	P9	4.6	0.20	0.08
		P1	14.6	0.26	0.07
C	1969	P2	1.7	0.34	0.15
D	1956	8	0.5	2.36	0.26
	1969	P6	3.0	0.20	0.10

N.B. The A Zone was not drilled in 1969.

Geology and Mineralization: The mineralized zones are hosted within an ENE trending sill-like 'norite' body that intrudes hornblendic and garnetiferous gneisses of the Archean Tantato Domain. The sill-like body is up to 800 m wide and more than 5 km in strike length.

The mineralized zones apparently form a single horizon up to 300 m wide and more than 3 km long within the central portion of the body. An ESE trending dextral fault underlies Dumas Lake and displaces the 'norite' body and the contained mineralized horizon about 1,200 m. The C and D Zones lie west of the fault; their faulted continuation (the B and A Zones) lie east of the fault.

Mineralization is formed principally by disseminated pyrrhotite and chalcopyrite; pyrite, pentlandite and arsenopyrite are rare.

References: Johnston (1962), SEM Assessment Files 74-P-11-0001, -0006, 74-P-14-0004, SMI-1679, -1739, -1772, -1773

ZINC OCCURRENCES

Class 1: Former mines, current mines and advanced prospects

63-K-13-SW

Name: **Callinan Deposit**

Location: Flin Flon, straddling the Saskatchewan-Manitoba border, 1.2 to 2.8 km north of the North Main Shaft of the Flin Flon mine (Location 41, Fig. 37)

History and Development: In 1927-29 Consolidated Callinan Flin Flon Mines Limited conducted exploration in the area of the deposit. The work comprised trenching of the exposed mineralization and diamond drilling. In 1937-38 an additional 5,791 m of drilling outlined a zone of copper-zinc mineralization, reportedly 195 m long by 0.3 to 0.9 m wide. A geophysical survey was performed in 1945 that outlined several magnetometer anomalies. This was followed up in 1948 with a gravimetric survey and in 1949-52 with an additional 4,877 m of diamond drilling. In 1965, the trend on the Saskatchewan side of the border was further explored by IP and magnetometer surveys and 1,297 m of diamond drilling. An additional 4,774 m was drilled in 1968.

Reserves were estimated at approximately 40,000 tons @ 0.27% Cu and 8.5% Zn down to the 275 m level in 1974 (Gale and Eccles, 1988). In 1976-79, HBED completed a 1,472 m long exploration drift on the 1,690 ft level from the Flin Flon mine's North Main Shaft. A subsequent two year underground drill program was undertaken from this drift to outline the geometry of the deposit. By 1986, 17,882 m of drilling had outlined two zones of mineralization in at least six sulphide lenses. Surface drilling (23,109 m) in 1984-85 to the north of the undergound drilling identified three sulphide lenses between the 200 and 600 m levels. In January, 1989, another drift (on the 2,210 ft level) was driven toward the deposit and a third, on the 2750 ft level, was planned.

Proven reserves total 2.6 million tons grading 4.1% Zn, 1.51% Cu, 0.055 oz./ton Au and 0.66 oz/ton Ag (**The Northern Miner Magazine**, Jan., 1989). The deposit is scheduled for production by year-end, 1989 at a rate of approximately 2,000 tons per day.

Reserves on the Saskatchewan side have been reported at 868,828 tons grading 3.7% Zn, 1.28% Cu, 0.045 oz/ton Au and 0.49 oz/ton Ag (Saskatchewan Geological Survey, 1987).

In March, 1988, Manitoba Mineral Resources entered into an agreement with Hudson Bay Mining and Smelting to earn a 49% interest in the deposit. Consolidated Callinan Flin Flon Mines Limited retains a 6.67 per cent net profits interest in the property.

Geology and Mineralization: The Callinan deposit actually comprises two discrete orebodies: the Callinan South and Callinan North deposits (Gale and Eccles, 1988). The Callinan South deposit lies approximately 1,000 m north of the Flin Flon deposit. The Callinan North deposit is about 1,200 m further north. Both deposits occur at about the same stratigraphic level as the Flin Flon deposit (Fig. 45).

The Callinan deposits are contained in northerly trending, easterly dipping and facing Amisk Group volcanics. To the west, footwall rocks comprise a thick sequence of mafic pillowed flows and fragment breccias (the South Main Basalt, Bailes et al., 1987). To the east, the hanging wall rocks are formed by a thick, relatively uniform succession of porphyritic, pillowed mafic flows (the Hidden Lake Basalt, Bailes et al., 1987).

The deposits are hosted within a rhyolite-bearing volcanic sequence at the top of the South Main Basalt. This sequence is probably largely equivalent to the 'mine rhyolite' that hosts the Flin Flon orebody.

The deposits lie on the east limb of the Beaver Road Antiform. The rocks have been subjected to greenschist facies metamorphic conditions.

Only the upper portions of the deposits are in Saskatchewan. Most of the following remarks are based upon recent descriptions of the deposits in Manitoba by Gale and Eccles (1988).

The Callinan South deposit comprises at least six stacked sulphide lenses that occur within a 250 m thick succession of intercalated narrow quartz porphyry units and mafic lapilli tuffs. A broad zone of chlorite schist, about 50 m wide,

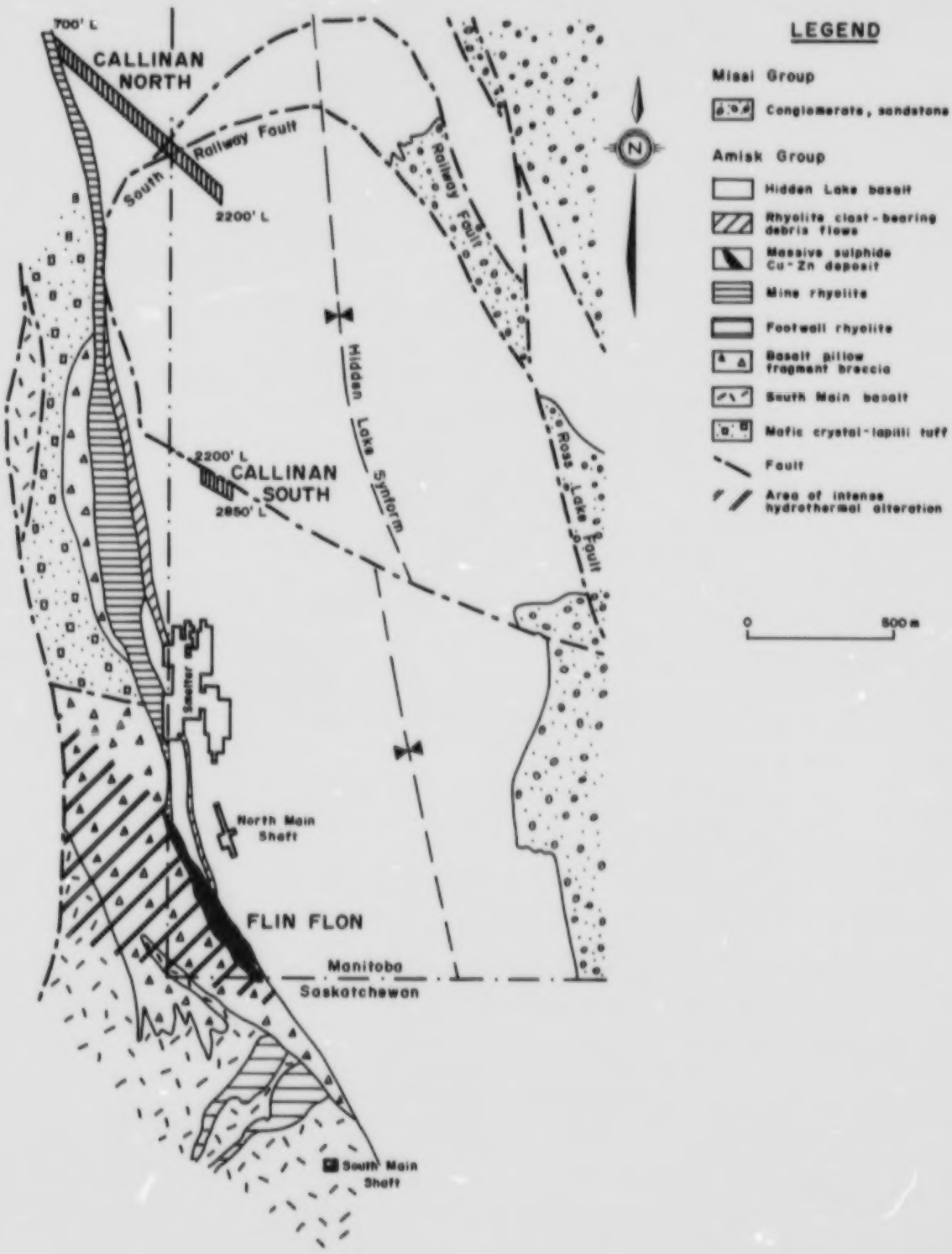


Figure 45. Geology in the vicinity of the Callinan and Flin Flon mines (after Gale and Eccles, 1988). Boundary intrusions have been omitted for clarity.

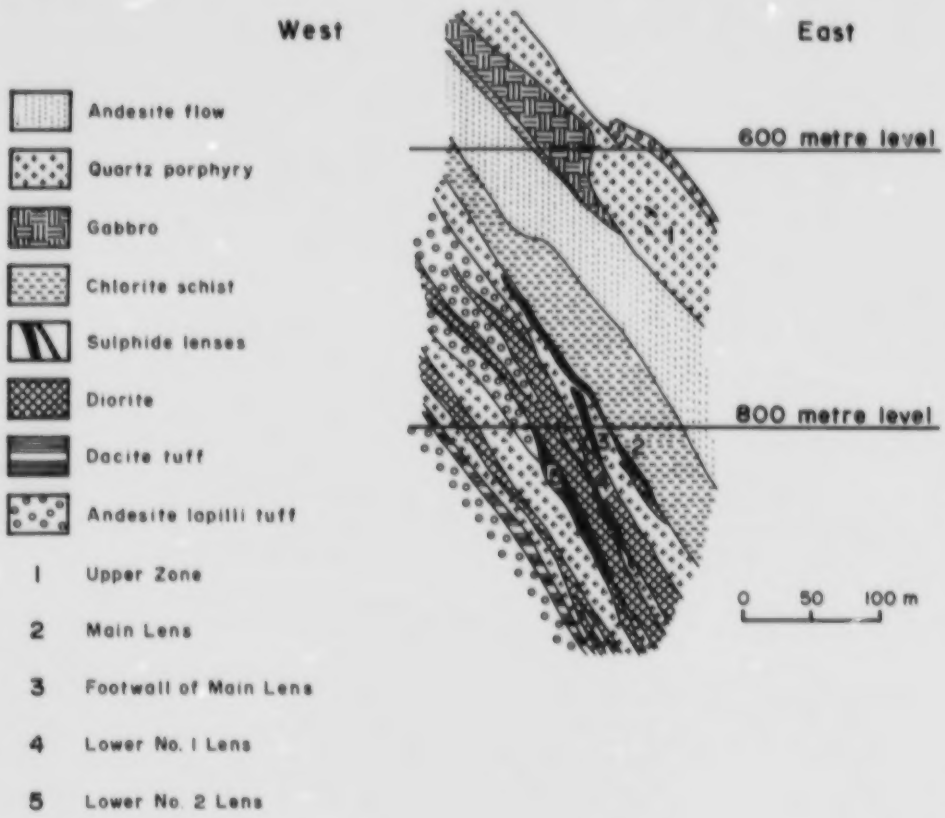


Figure 46. Generalized cross section, Callinan South deposit (after Gale and Eccles, 1988).

separates an uppermost quartz porphyry unit from lowermost multiple units of quartz porphyry. The sulphide lenses are intimately associated with the quartz porphyry units (Fig. 46).

The stacked lenses are formed by near massive to massive, fine grained and banded sulphides. Pyrite, sphalerite, pyrrhotite and chalcopyrite predominate; galena and arsenopyrite are subordinate. Chlorite and sericite schists, with stringers of chalcopyrite, pyrrhotite, sphalerite and pyrite, represent footwall alteration below the sulphide lenses in the uppermost rhyolite. The 'main' lens, near the top of the lower multiple rhyolite units, has a length of about 200 m and an average thickness of three metres. It extends from the 670 m level to below the 800 m level. The lens dips 56 degrees east and plunges 20 degrees to the southeast.

The Callinan North deposit is not exposed at the surface. It comprises multiple sulphide lenses that are hosted within quartz- and feldspar-phyric rhyolitic rock (that includes a thin carbonaceous argillite near its base). The rhyolitic rocks are underlain by mafic lapilli tuffs and overlain by mafic flows (Fig. 47).

The Callinan North mineralization is formed mainly by fine grained banded sulphides that include sphalerite, pyrite, pyrrhotite and chalcopyrite. The lower footwall lens extends approximately 275 m and has an average horizontal width of seven metres. It extends from the 425 m level to below the 600 m level. The component sulphide lenses dip 40 degrees east and plunge 35 degrees to the southeast.

References: Bailes et al. (1987), Byers et al. (1965), Gale and Eccles (1988), Saskatchewan Geological Survey (1987), SEM Assessment Files 63-K-13-0005, -0021, -0023, SMI-0072

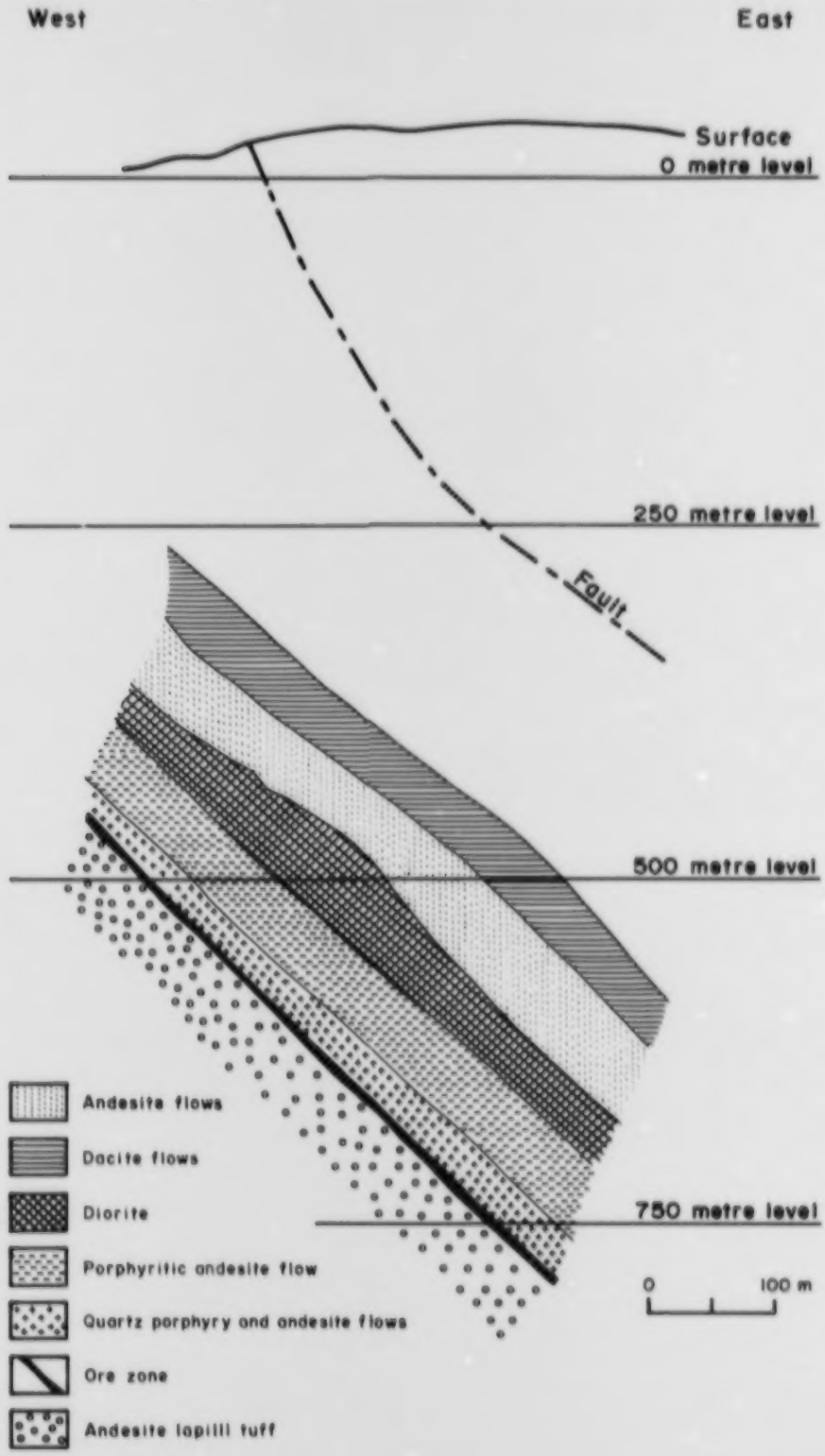


Figure 47. Generalized cross section, Callinan North deposit (after Gale and Eccles, 1988).

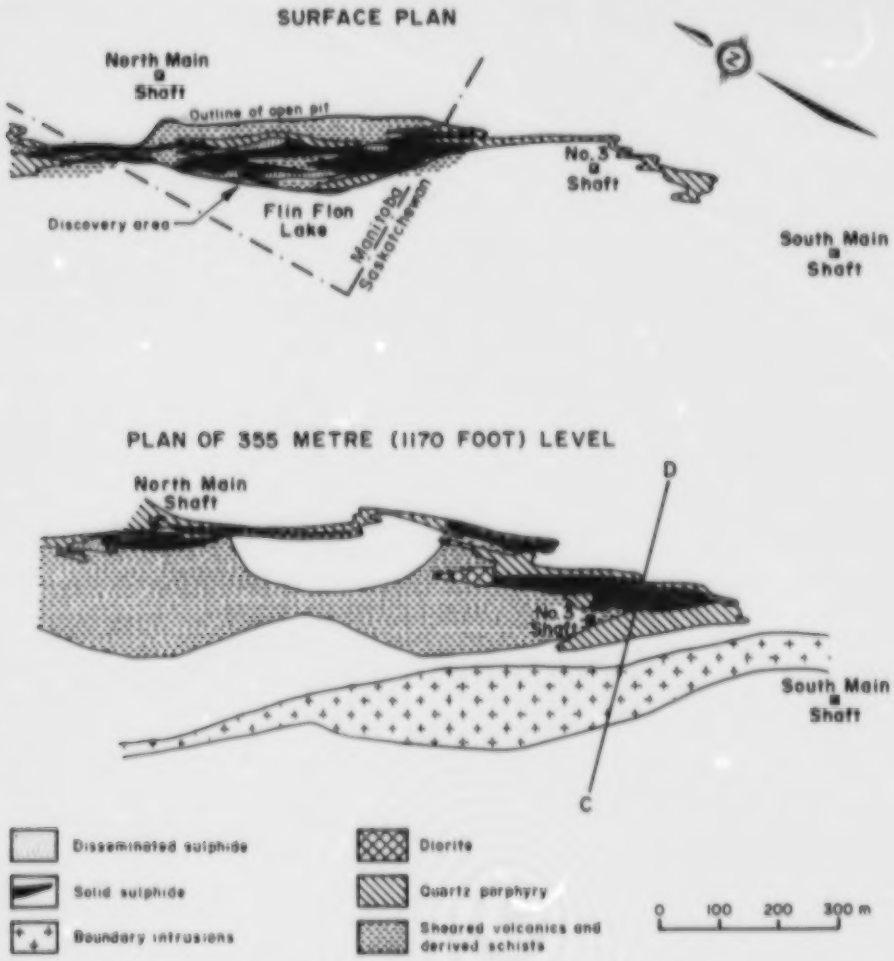


Figure 48. Level plans (surface and 355m), Flin Flon mine (after Byers et al., 1965).

Name: **Flin Flon Mine**

Location: Flin Flon, Saskatchewan-Manitoba border (Location 42, Fig. 37)

History and Development: The Flin Flon deposit was discovered in 1914 by T. Creighton and the Mosher and Dion brothers and was staked in 1915. From 1916 to 1918, 44 diamond drill holes, totalling 7822 m, outlined the deposit to 274 m below the surface. In 1920, two shafts were sunk 152 m apart: the No. 1 shaft to a depth of 64m and the No. 2 shaft to a depth of 93m. Approximately 354 m of drilling was completed on the 30 m (100 ft), 61 m (200 ft) and 91.4 m (300 ft) levels.

In 1921, the Mining Corporation of Canada acquired a majority interest in the property and from 1921-22 carried out exploration work in the vicinity of the deposit. In 1925, the Whitney interests of New York optioned the property and from 1926-27 set up a test mill to conduct concentration and cyanidation tests of the ore. In 1927, the Whitney Group established a majority interest in the property, with the Mining Corporation of Canada retaining a 15% interest in all the holdings. In the same year, the Hudson Bay Mining and Smelting Company Limited was incorporated to develop the property.

The development of the mine and construction of the mill, zinc recovery plant, copper smelter, a hydroelectric plant at Island Falls on the Churchill River and a railway line from The Pas,

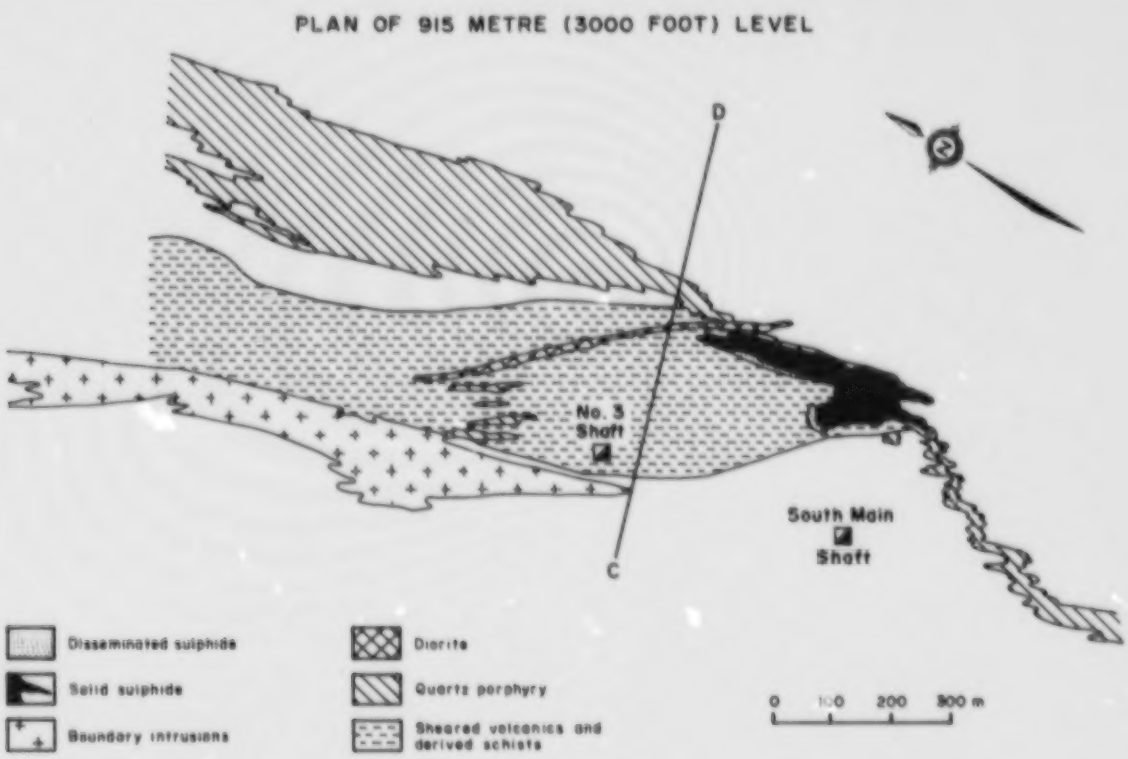


Figure 49. Level plan (915m), Flin Flon mine (after Byers et al., 1965).

Manitoba began in 1928. In that year, reserves were estimated above the 274m (900ft) level at 18,000,000 tons averaging 1.71% Cu, 3.45% Zn, 0.74 oz/ton Au and 1.06 oz/ton Ag.

Production commenced in 1930 at 2700 tons per day and reached a high of 5400 tons per day during World War II. From 1930-36 most of the ore was mined from a large open pit that was developed to a depth of about 100 m. By 1941, all ore production came from underground.

The mine consists of three vertical shafts (Figs. 48 and 49), the No. 1 (North Main) shaft [676.3 m (2219 ft)] in Manitoba, the No. 3 shaft [990.6 m (3250 ft)], 715 m SSE of the No. 1 shaft, and the No. 2 (South Main) Shaft [1241.4 m (4073 ft)] in Saskatchewan (currently the main production shaft), approximately 442 m south of the No. 3 shaft. The ore reportedly runs out below 1140 m; mine workings extend to the 1125 m level.

Total production to March 31,1987 comprised approximately 68.5 million tons grading 2.18% Cu, 4.15% Zn, 0.078 oz/ton Au and 1.21 oz/ton Ag; the Saskatchewan portion is estimated at 47 million tons averaging 2.22% Cu, 4.20% Zn, 0.073 oz/ton Au and 1.23 oz/ton Ag (Saskatchewan Geological Survey, 1987).

Since 1962 production has been mainly from pillars and remnants. As of January 1, 1988 remaining reserves are reported to be approximately 500,000 tons (Gale and Eccles, 1988). The deposit is currently nearly depleted.

Geology and Mineralization: The Flin Flon deposit is contained in northerly trending, easterly dipping and facing Amisk Group volcanics (Fig. 45). To the west, footwall rocks comprise a thick sequence of mafic pillowed flows and fragment breccias (the South Main Basalt, Bailes et al., 1987). The immediate footwall to the deposit is a 200-300 m thick sequence of pillow fragment breccia. Primary volcanic features in the South Main Basalt suggest that the unit was deposited in relatively shallow water and locally, at least, possibly the

volcanism was subaerial (Bailes et al., 1987).

Immediately overlying the South Main Basalt is the 'Mine Rhyolite', that hosts the deposit. The Mine Rhyolite, up to 150-180 m thick in the vicinity of the smelter complex, can be traced about three kilometres. It comprises two distinct phases: the lowermost Rhyolite 1 and the uppermost Rhyolite 2 flows. The quartz- and plagioclase-phyric Rhyolite 1 flow is a breccia of rhyolite fragments in a rhyolite matrix. The Rhyolite 2 flow is formed by a lower, massive, flow banded quartz- and plagioclase-phyric rhyolite flow and an upper quartz- and plagioclase-phyric rhyolite flow breccia that commonly contains slabs of flow banded rhyolite (Bailes et al., 1987).

Large bodies of rhyolitic rocks (including pumice breccia and flow banded and massive rhoylite) are conspicuous immediately north of the South Main Shaft. Here, these bodies cut the footwall basalts and probably represent high level rhyolite domes that are related to the Mine Rhyolite (Bailes et al., 1987).

The Mine Rhyolite (and related sulphide bodies) is immediately overlain by bedded volcaniclastic rocks comprising rhyolite clast-bearing debris flows. The latter rocks are, in turn, overlain to the east by a thick, relatively uniform succession of porphyritic, pillowed mafic flows (the Hidden Lake Basalt, Bailes et al., 1987).

The heterogeneous 'Boundary Intrusions' invade the volcanics and the adjacent, overlying Missi sediments.

The volcanic sequence is on the eastern limb of the Beaver Road Antiform. The rocks have attained greenschist facies metamorphic conditions.

The Flin Flon deposit comprises six orebodies that occur on the eastern limbs and crests of minor folds on the limb of the major antiform. The orebodies plunge 35 degrees to the southeast, parallel to the minor fold axes (Fig. 51).

The orebodies occupy a zone with a length of about 800 m, a width of 150 m and a depth extension from surface of 1,140 m. The mineralized zone dips east at approximately 70 degrees and plunges to the southeast for a plunge length of about 2,000 m. The orebodies average 270 m in length, 21 m in width, 450 m in depth and 840 m in plunge length.

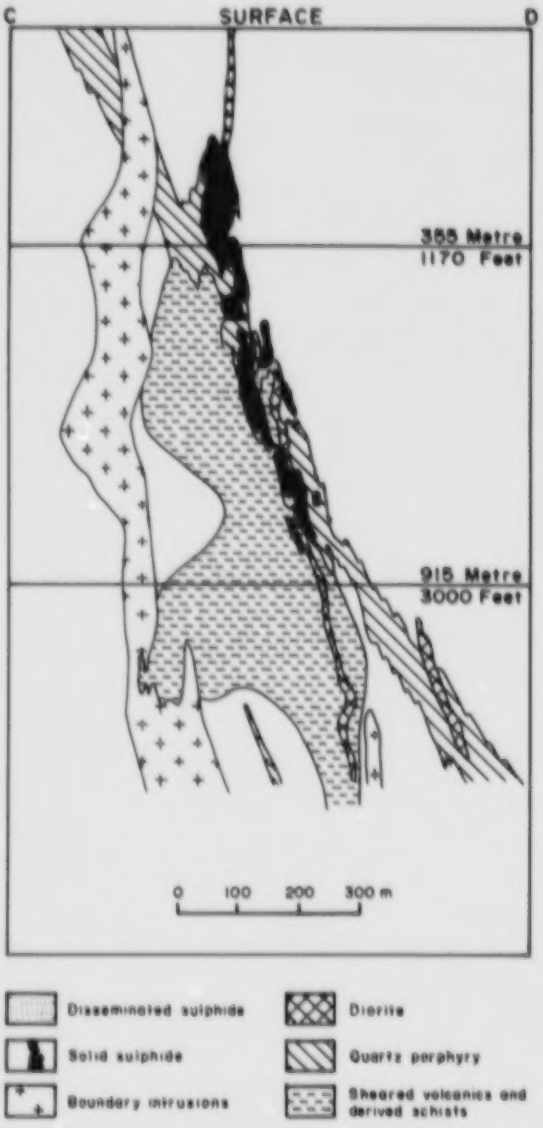


Figure 50. Cross section C-D, Flin Flon mine (after Byers et al., 1965).

An extensive zone of footwall alteration, comprising chlorite and chlorite-talc schists, is associated with the deposit. The alteration affects both the footwall mafic volcanics and the Mine Rhyolite and has dimensions in excess of 0.5 X 1.0 X 2.0 km.

Approximately 70 per cent of the ore is contained in massive sulphide lenses that are commonly banded; the remainder is contained

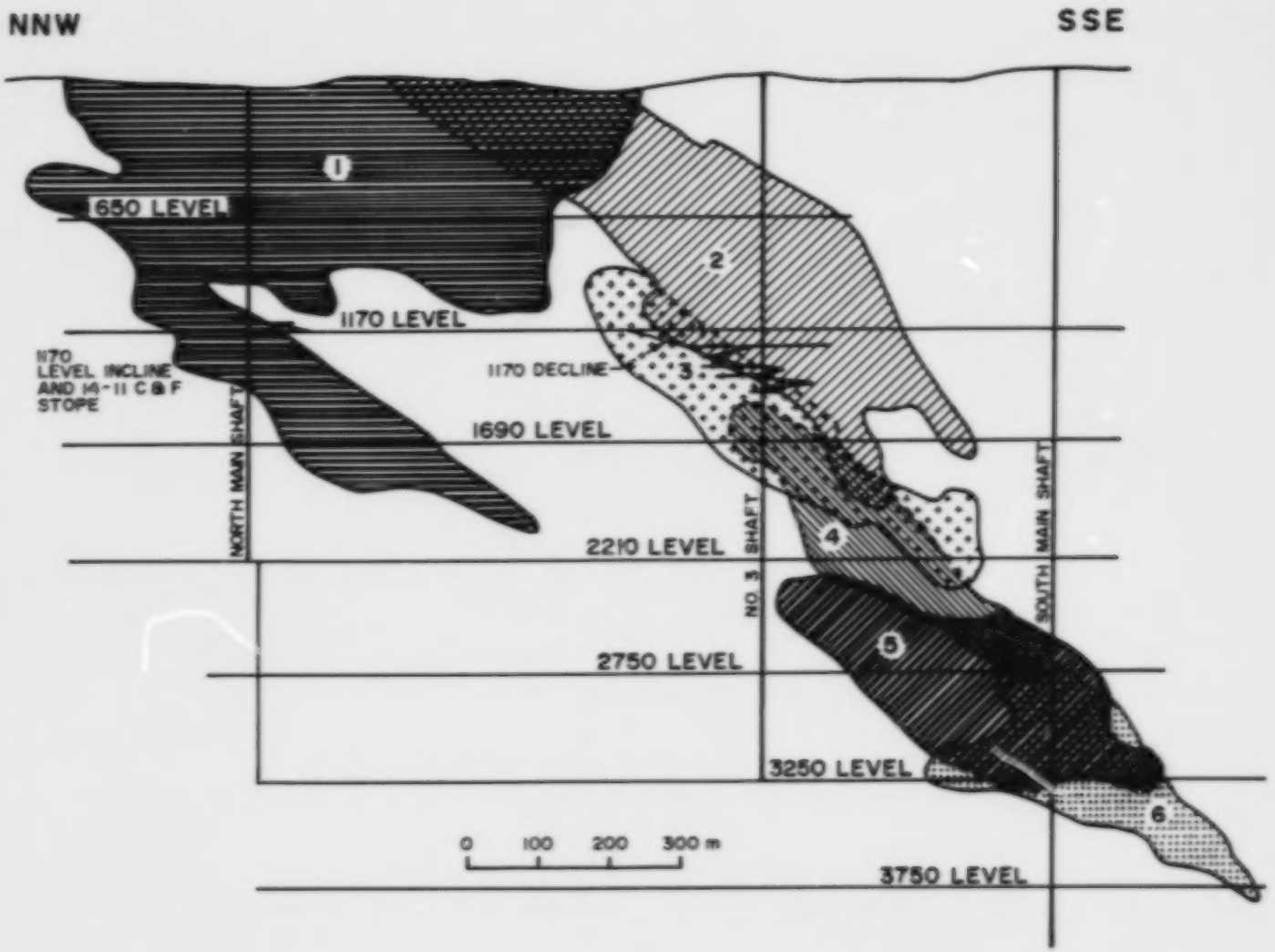


Figure 51. Longitudinal section, Flin Flon mine (after Price, 1977b).

in zones of disseminated sulphide adjacent to these lenses. Predominant minerals are pyrite, pyrrhotite, sphalerite and chalcopyrite. Minor minerals include arsenopyrite, cubanite, galena, tetrahedrite-tennantite, sylvanite, tetradymite, altaite, magnetite, electrum and gold.

Sphalerite, galena, tetrahedrite and electrum are enriched relative to chalcopyrite toward the hanging wall portions of the massive sulphide lenses. As well, there is a close association between zinc and gold-silver in the massive sulphide lenses. Also, copper increases in amount relative to zinc, gold and silver with increasing depth in the mine.

References: Bailes et al. (1987), Beck (1959), Brownell and Kinkel (1935), Byers et al. (1965), Gale et al. (1982), Geology staff of the Hudson Bay Mining and Smelting Co., Limited (1957), Koo and Mossman (1975a, 1975b), Price (1977a, 1977b), Sangster (1972), Saskatchewan Geological Survey (1987), SMI-0071

63-L-10-NW

Name: **Hanson Lake Mine (Parrex Mining Syndicate (Trust) Showing 3)**

Location: 200 m east of the west shore of 'Mine' Bay, southwest part of Hanson Lake (immediately east of the end of the mine road), (Location 43, Fig. 37)

History and Development: Early prospecting in the vicinity of Hanson Lake was apparently conducted in the 1930s. The property containing the deposit was first acquired by staking or option in 1956 by Parrex Mining Syndicate (Trust). In December, 1957 Hanson Mines Ltd. acquired the original group of Par claims over the showing. During 1956-60, the syndicate performed an airborne magnetometer and electromagnetic survey and follow-up ground geophysics and drilled 30 holes (5265 m) along a magnetometer anomaly 200 m east of the shore between Bertrum and McIlvenna Bays.

The drilling (1957-59) tested a mineralized shear over a length of approximately 550 m and outlined a steep dipping, flat to gently plunging orebody, about 245 m long, between depths of 50 m to 120 m, with estimated reserves of 125,000 tons grading 12.66% Zn, 8.17% Pb, 0.64% Cu, 3.03 oz/ton Ag, 0.018 oz/ton Au and minor Cd.

In 1965, Share Mines and Oils Ltd. purchased the property from Hanson Mines and conducted additional drilling (in at least 35 holes), thereby delineating the mineralized shear over a length of 600 m and to a depth of more than 180 m (Fig. 53). The contained orebody was outlined over a length of 450 m to a maximum depth of 150 m beneath about 30 m of water and lake silts. The average mining width was calculated at 2.4 m (based on a minimum mining width of 1.5 m). The orebody was estimated to contain 293,185 tons (mineable reserves of 253,185 tons) grading 11.42% Zn, 8.09% Pb, 0.61% Cu, 4.74 oz/ton Ag and 0.032 oz/ton Au.

In October, 1965 Share Mines announced that Western Nuclear Mines Inc. would finance the deposit to production, in return for a 50 per cent interest in the deposit and the Par claim group. Late in 1965, a 10.5 km long road was constructed from the Hanson Lake highway to

Table 15. Production History, Hanson Lake Mine

Year	Tons	Zn(%)	Pb(%)	Cu(%)	Ag(oz/ton)
1967	41,899	8.11	4.85	0.46	5.25
1968	60,789	10.89	6.32	0.48	2.89
1969	59,718	10.42	6.01	0.57	
Total	162,406	9.99	5.83	0.51	4.00

Metal	1967	1968	1969	Total
Zn (lbs)	3,901,899	8,592,000	10,677,240	23,171,139
Pb (lbs)	520,453	5,810,695	5,877,520	12,208,668
Cu (lbs)	51,896	558,481	554,660	1,165,037
Au (oz)	75	255	655	985
Ag (oz)	1,392	191,488	186,021	378,901

Source: MacDougall (1983), SMI-0209

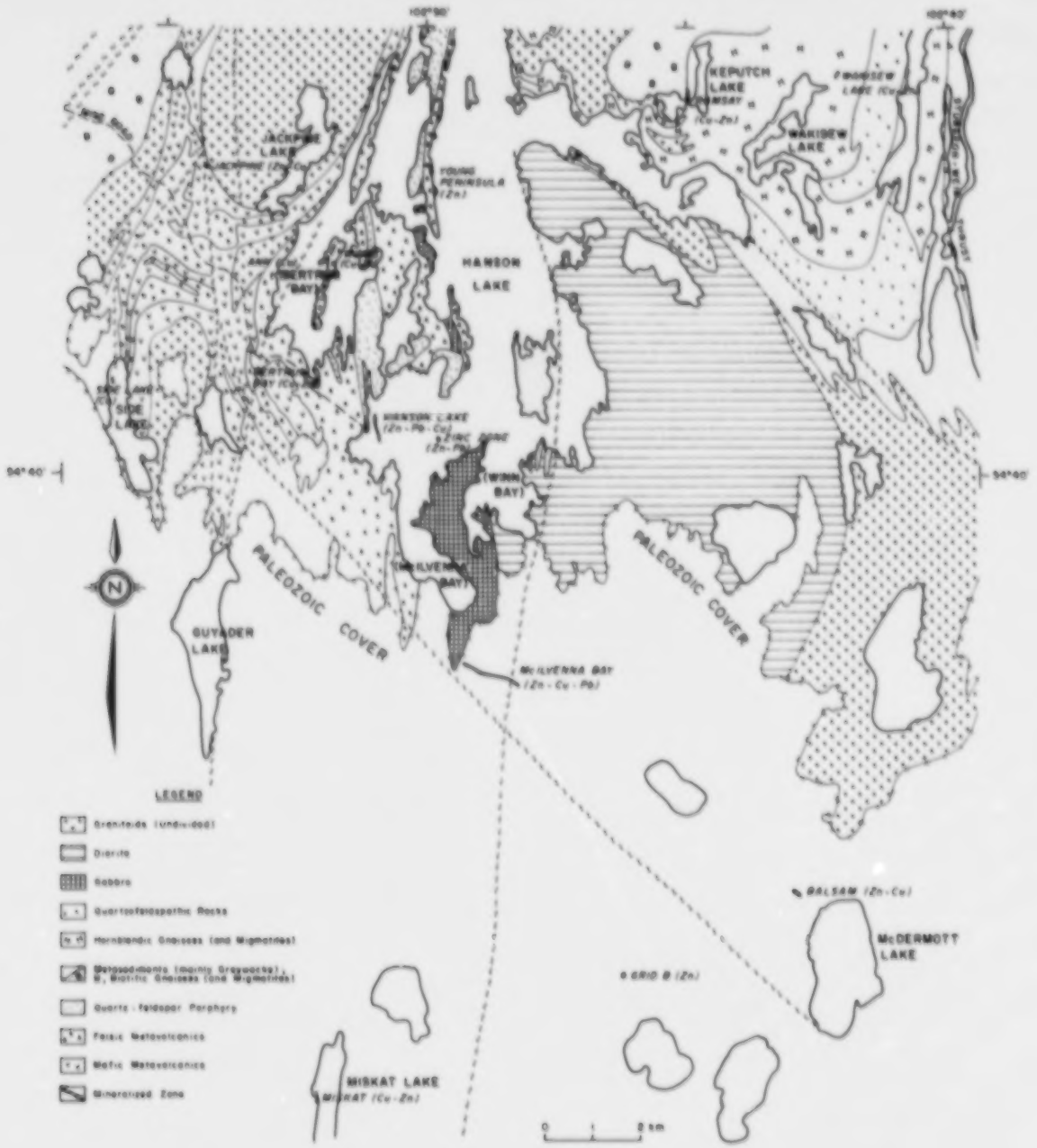


Figure 52. Geology and mineral occurrences in the vicinity of Hanson Lake (geology after Byers, 1957, Coleman et al., 1970 and Sibbald, 1989).

the mine site. Shaft sinking (on the mainland, about 200 m west of the orebody) commenced in May, 1966 and by September the shaft had been completed to a depth of 205 m.

Shipments of Cu-Zn and Pb-Zn concentrates began June 5, 1967. Milling was suspended during December, 1967 to June, 1968 but then continued to the exhaustion of ore in July, 1969.

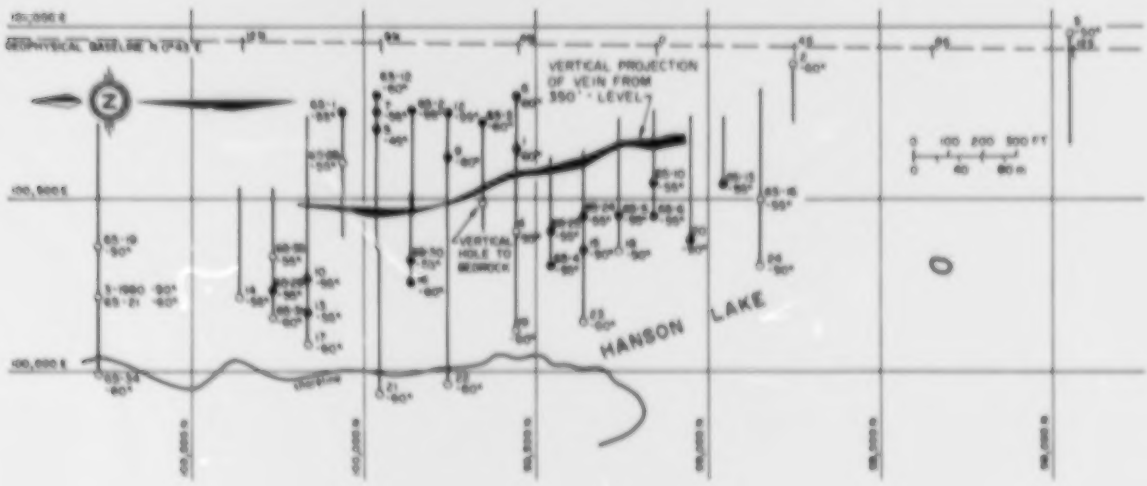


Figure 53. Diamond drill plan, Hanson Lake deposit (from SEM Assessment File 63-L-10-0023).

A total of 162,406 tons was extracted at an average (head?) grade of 9.99% Zn, 5.83% Pb and 0.51% Cu. Production history is given in Table 15.

In 1984, Cameco optioned the property from the Share Mines and Oils Ltd. (50%)-Western Nuclear Mines (50%) joint venture and conducted geophysical surveys and diamond drilling. The option was dropped in 1987. The mine site is currently covered by ML 5056, owned by Share Mines and Oils Ltd. (50%) and Western Nuclear Mines (50%).

Geology and Mineralization: The Hanson Lake deposit does not crop out; it lies beneath the waters of Hanson Lake. The deposit is hosted within northerly trending, easterly dipping and facing Aphebian (?) felsic volcanic rocks of the Hanson Lake Block (Fig. 52).

The volcanics range in composition from felsic to mafic and are overlain by greywackes in the eastern basin of Hanson Lake and intruded by bodies of felsic to ultramafic composition. The supracrustal rocks have been metamorphosed to lower amphibolite grade.

The immediate geology of the deposit is poorly known. Apparently, the deposit is hosted within banded quartz-sericite-fuchsite schists, partly derived from adjacent footwall and hanging wall well-banded dacitic tuffs. The latter (30 to 75 m thick) are intercalated within massive and flow-banded dacitic flows. The volcanics are intruded by quartz-feldspar porphyry.

The orebody is steeply (sub-vertical) dipping and plunges north at 10 to 15 degrees. The deposit comprises lenses of massive sulphide (2 to 3 m thick) and overlying (?) stringer sulphide zones (3 to 5 m thick). The massive lenses exhibit relatively sharp contacts with the footwall tuffs; the overlying quartz-sericite-fuchsite schists (and contained stringer zones) exhibit gradational transition into the hanging wall tuffs.

A plan view and cross section of the orebody are given in Figs. 53 and 54 respectively. Longitudinal sections showing diamond drill results and mined out areas are given in Figs. 55 and 56 respectively.

Mineralization comprises mainly pyrite, pyrrhotite, sphalerite, galena and chalcopyrite. The massive sulphide lenses are formed by massive, fine grained sphalerite and galena with minor arsenopyrite, pyrite, pyrrhotite, chalcopyrite, argentite and tetrahedrite; gangue minerals comprise sericite, biotite, chlorite, garnet and fuchsite. The 'stringer' zone is formed by disseminations and irregular cross-cutting veinlets of the dominant sulphides mentioned above.

Byers (1957) reports chloritic alteration extends up to 7.5 m from the ore, wherein actinolite and biotite are altered to chlorite. Coleman et al. (1970) report the presence of metasomatized footwall volcanics, identified by the presence of

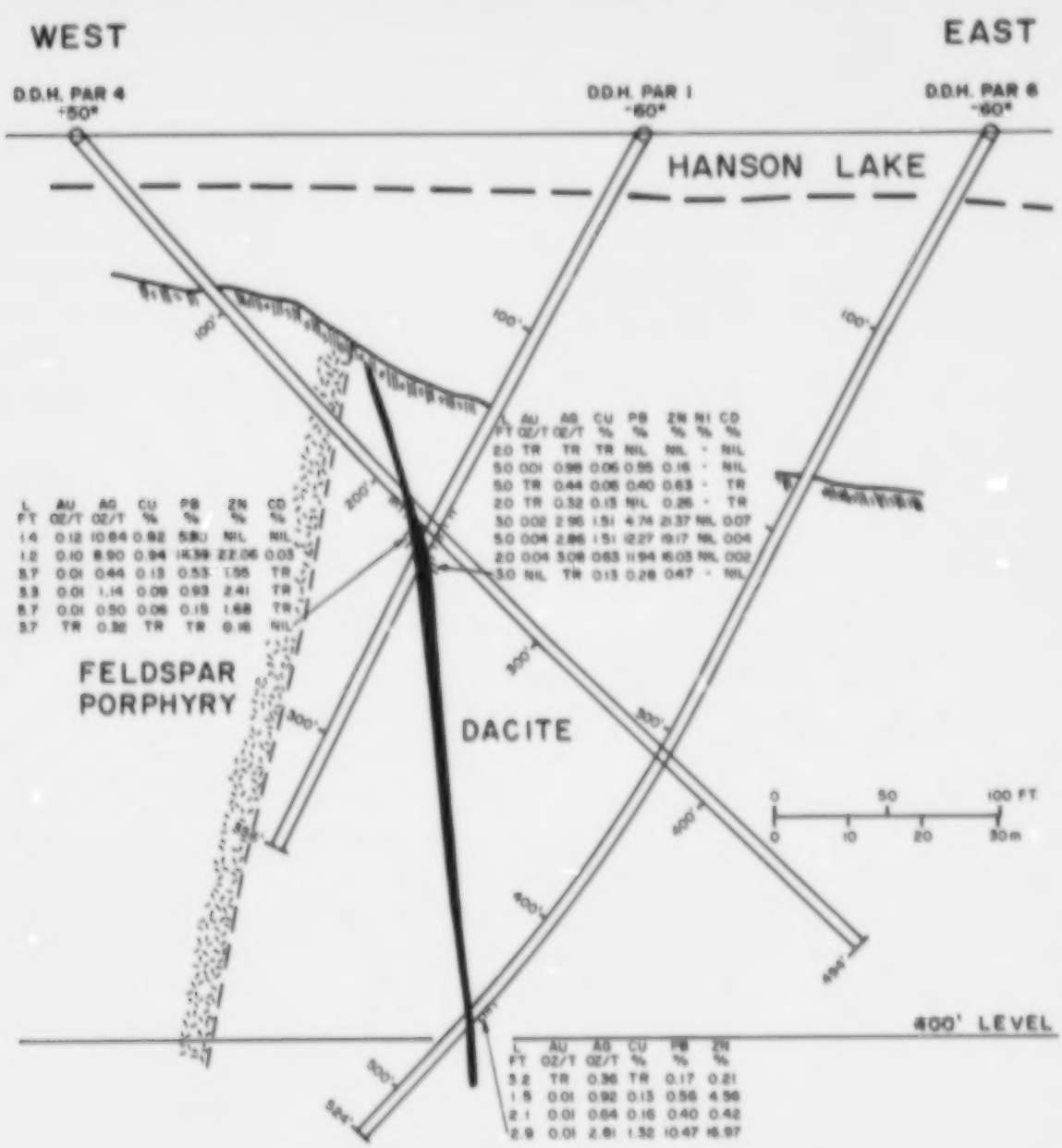


Figure 54. Diamond drill hole cross section 4N, Hanson Lake deposit (from SEM Assessment File 63-L-10-0007).

abundant coarse amphibole, biotite, garnet, diopside and, in places, fuchsite.

References: Beck (1959), Byers (1957), Coleman et al. (1970), Sabina (1972), Sibbald (1989), Saskatchewan Geological Survey (1987), SEM Assessment Files 63-L-10-0007, -0008, -0023, -0024, -0043, -0044, SMI-0209

Name: **McIlvenna Bay (Hanson Lake)**

Location: Approximately 1,200 m southeast of McIlvenna Bay, Hanson Lake, about 60 km west of Flin Flon (Location 44, Fig. 37)

History and Development: In 1983, SMDC (now Cameco) flew an INPUT and magnetometer

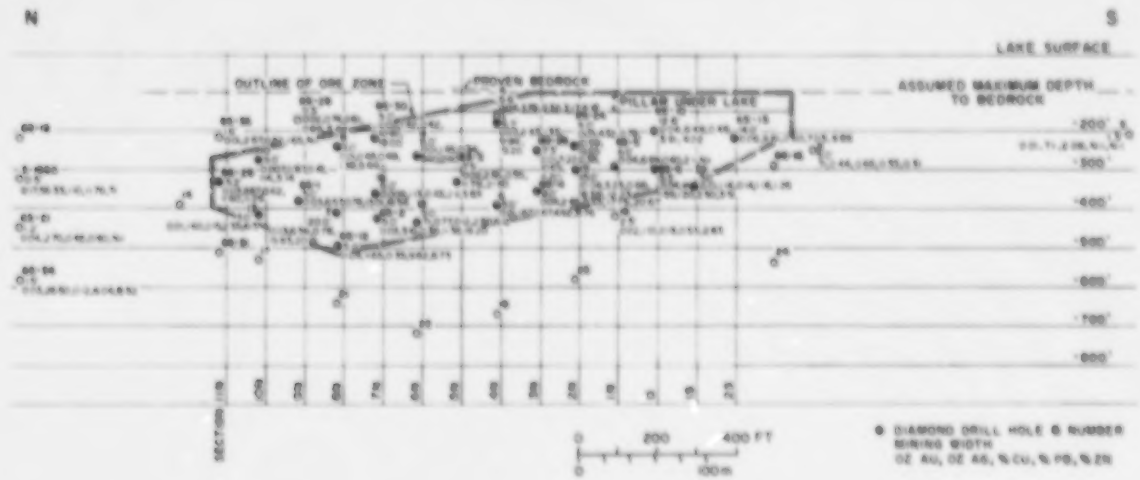


Figure 55. Diamond drill hole longitudinal section, Hanson Lake deposit (from SEM Assessment File 63-L-10-0023).

survey over the Hanson Lake area. In the winter of 1987-88, the company performed ground EM and magnetometer surveys in the McIlvenna Bay area, on behalf of a SMDC (50%)-Esso Minerals Canada (25.5%)-Tri Gold Industries Inc. joint venture (24.5%).

In April, 1988 the joint venture announced the discovery of significant mineralization in six holes drilled southeast of McIlvenna Bay. By the end of 1988, 27 holes (totalling 8,600 m) had been drilled, outlining a deposit 600 m long and extending to a depth of 500 m. In December,

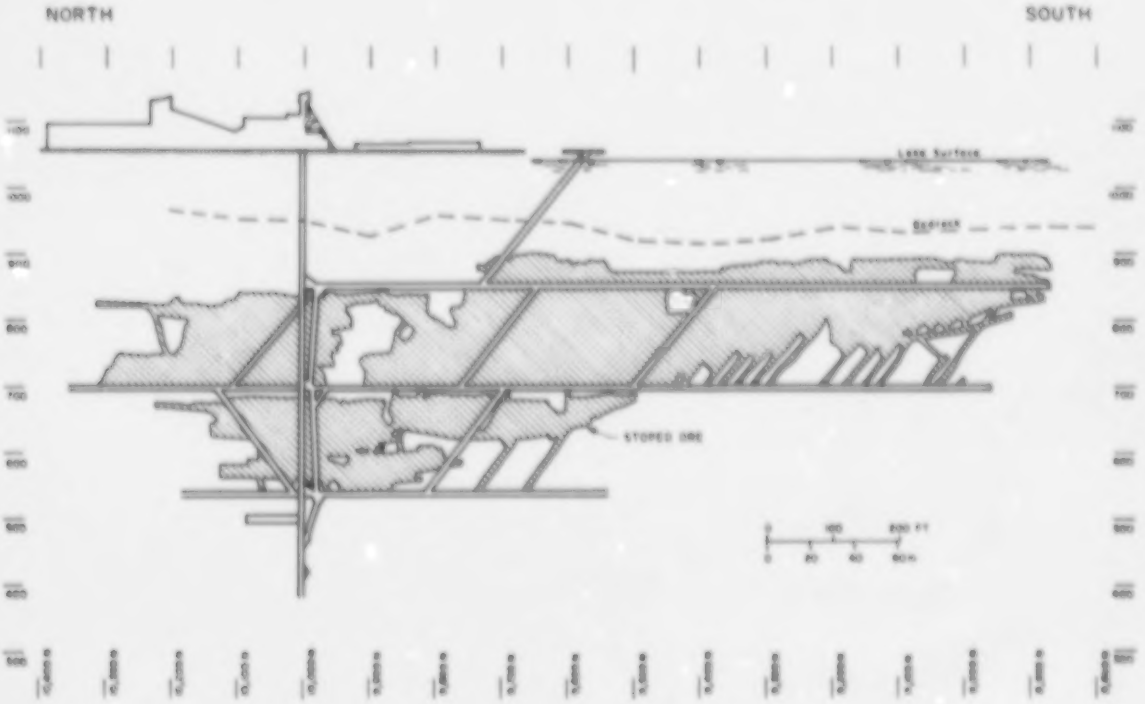


Figure 56. Stoped ore outline, Hanson Lake mine (from SEM mine plans).

1988 potential reserves were announced as 3,306,000 tons grading 7.5% Zn and 0.8% Cu in Lens 2 with additional potential for 440,800 tons grading 2.5% Zn and 1.7% Cu in Lens 1 and 44,080 tons grading 1.6% Cu and 8.1% Zn in Lens 3.

During January to April, 1989, the joint venture drilled a further 12 holes (totalling 8,850 m) on the deposit to test the depth extensions. In March, 1989 Tri Gold changed its name to Trimin Resources Inc.

The drilling indicated Lens 2 extended to a vertical depth of at least 900 m. In June, 1989 estimated reserves were reported as 7.7 million tons (possible) of 6.5% Zn, 1.1% Cu, 0.9 oz/ton Ag and 0.02 oz/ton Au in lens 2, with additional potential for 440,800 tons grading 2.5% Zn and 1.7% Cu in Lens 1 and 44,080 tons grading 1.6% Cu and 8.1% Zn in Lens 3.

Subsequently, in August, 1989, Cameco and Trimin exercised their first rights of refusal to purchase Esso's interest in the property, thereby allowing Cameco and Trimin to increase their interests to 67.1% and 32.9% respectively.

In the fall to winter, 1989 the joint venture completed a further 15 (mainly infill) holes (totalling 5,764 m) on the deposit. In January, 1990 new geological reserve estimates were announced. Probable reserves in Lens 2 are 10.8 million tons grading 5.76% Zn, 0.95% Cu, 0.42% Pb, 0.015 oz/ton Au and 0.73 oz/ton Ag. Possible reserves in Lens 1 are 900,000 tons grading 0.84% Zn, 2.23% Cu, 0.03% Pb, 0.02 oz/ton Au and 0.45 oz/ton Ag. As well, potential reserves in a new zone are 550,000 tons grading more than 2% Cu.

In the fall of 1989, a prefeasibility study was completed. The latter was based on a 3,000 ton per day operation, capital costs of $90 million and operating (mining and milling) costs of $38 per ton.

Geology and Mineralization: The McIlvenna Bay deposit does not crop out. It is hosted in northerly trending Aphebian (?) volcanics of the Hanson Lake Block that lie beneath a 30 m thick cover of Paleozoic rocks (Fig. 52).

The volcanics range in composition from felsic to mafic and are overlain by greywackes in the eastern basin of Hanson Lake and intruded by bodies of felsic to ultramafic composition. The supracrustal rocks have been metamorphosed

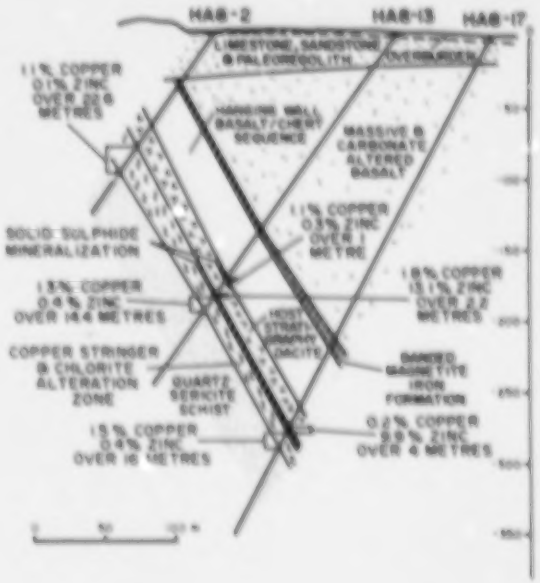

HAB-2
HAB-13
HAB-17
LIMESTONE, SANDSTONE & PALEOPOROLITH OVERBURDEN
1.1% COPPER 0.1% ZINC OVER 22.6 METRES
HANSON WELL BASALT/CHERT SEQUENCE
MASSIVE & CARBONATE ALTERED BASALT
SOLID SULPHIDE MINERALIZATION
1.1% COPPER 0.3% ZINC OVER 1 METRE
1.8% COPPER 0.4% ZINC OVER 14.4 METRES
1.8% COPPER 13.1% ZINC OVER 2.7 METRES
COPPER STRINGER & CHLORITE ALTERATION ZONE
QUARTZ SERICITE SCHIST
BANDED MAGNETITE IRON FORMATION
1.5% COPPER 0.4% ZINC OVER 16 METRES
0.2% COPPER 9.9% ZINC OVER 4 METRES

Figure 57. Diamond drill hole cross section, McIlvenna Bay deposit (from Trimin Resources Inc., news release, **Northwest Prospector**, Nov./Dec., 1989)

to lower amphibolite grade.

Footwall rocks to the mineralization comprise a sequence, at least 50 to 100 m thick, of variably laminated, homogeneous quartz-sericite schists (Fig. 57). Immediately beneath the mineralized horizon the schists are well laminated due to alternating chert and micaceous layers.

Hanging wall rocks are formed by a 2-6 m thick laminated felsic unit, comprising alternating chert, micaceous and felspar-phyric (dacitic crystal tuff) layers. These are, in turn, overlain by a 35 m thick mixed mafic-felsic unit (basalt-chert) that is capped by a 3-5 m thick mixed oxide-silicate-sulphide facies iron formation (the lower banded iron formation). The latter unit is overlain by 50-70 m of massive basalts that are variably epidotized and carbonatized. This sequence is capped by a 0.1 to 23 m wide upper banded mixed facies iron formation.

The mineralization is hosted by poorly layered quartz-chlorite-muscovite±andalusite schists. They probably represent altered footwall rocks with which they exhibit a transitional contact.

The deposit comprises several lenses of massive sulphide and underlying stringer

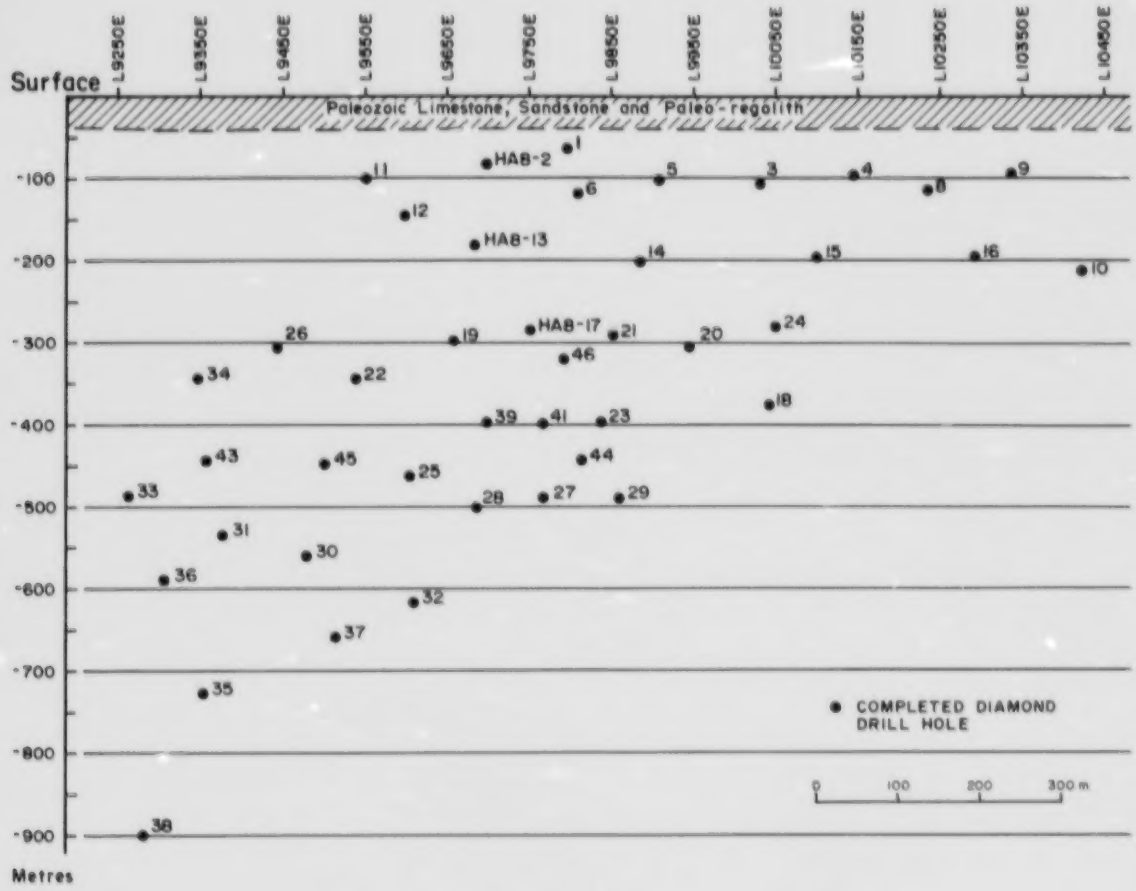


Figure 58. Diamond drill hole longitudinal section, McIlvenna Bay deposit (from Trimin Resources Inc., news release, Northwest Prospector, Nov./Dec., 1989).

sulphide zones. The lenses dip steeply to the northeast (Fig. 57); the main lens (Lens 2) plunges moderately to the north (Fig. 58).

Mineralization in the massive sulpide lenses comprises essentially unlayered pyrite, sphalerite and chalcopyrite. The stringer zones

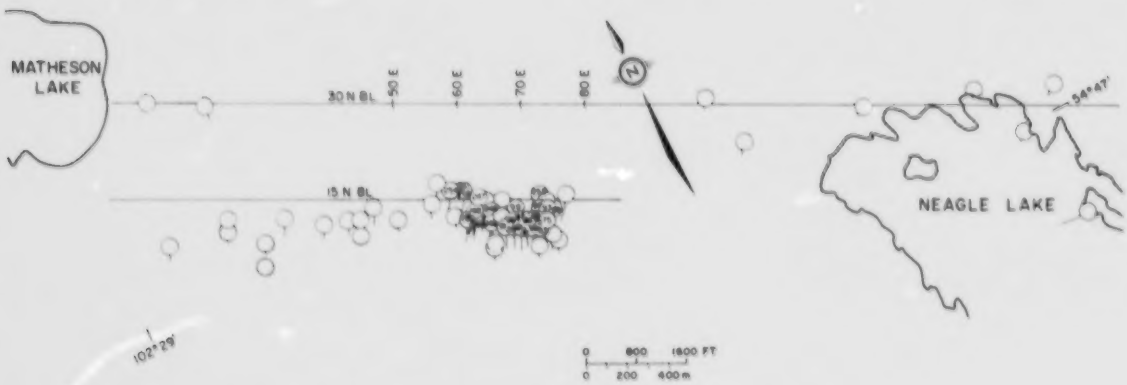


Figure 59. Diamond drill plan, Fon zones (from SEM Assessment File 63-L-16-0053).

are formed mainly by conformable and cross-cutting concentrations of copper and iron sulphides.

References: Kozial and Ostapovitch (in prep.), Company news releases (Cameco, April 27, 1988, December 20, 1988), **Stockwatch** (June 5, 1989), **The Northern Miner** (January 8, 1990), Sibbald (1989), SMI-2169

63-L-16-SW

Name: **Fon**

Location: About 1.5 km WNW of Neagle Lake (approximately midway between Neagle and Matheson Lakes) (Location 45, Fig. 37)

History and Development: Hudson Bay Exploration and Development Company Limited carried out EM surveys over a large area in the Neagle-Matheson Lakes area in 1966-68. In 1968, the company commenced follow-up anomaly drilling. Drill hole Fon-53 (the discovery hole) was drilled into a wide, west-northwest trending EM anomaly (Fig. 59). During 1968-72, Hudson Bay drilled more than 34 holes (totalling ±6,750 m) into the zone. The drilling tested the mineralization over a length of about 600 m and encountered a series of stacked massive sulphide lenses. The following summarizes some of the highlights of the drilling:

Ddh	Width (m)	Zn (%)	Cu (%)	Pb (%)	Ag (oz/ton)	Au (oz/ton)
53	6.7	2.0	0.4	-	0.33	-
	2.8	5.1	0.7	-	0.40	Tr
	10.6	3.1	0.3	-	0.14	-
	2.0	7.8	0.6	-	0.65	Tr
56	3.1	12.8	0.2	1.5	1.56	0.01
	4.2	7.3	-	0.3	0.26	-
	2.3	6.3	Tr	-	0.30	-
	1.1	8.1	0.2	1.5	1.46	-
61	0.3	17.1	0.2	5.2	7.17	0.03
	1.8	1.8	2.0	0.1	1.47	0.01
	1.8	6.8	0.4	-	0.30	-
	1.9	Tr	2.1	-	0.60	0.01
63	2.2	20.2	0.2	0.9	1.89	0.01
	1.8	18.0	0.2	0.6	0.88	0.02
69	1.6	8.4	0.1	-	0.50	Tr
	0.6	8.6	0.1	-	0.25	Tr
72	0.8	3.5	0.1	0.3	0.60	0.01
	1.4	4.8	0.2	0.8	1.33	0.01
	1.7	14.1	0.4	0.8	2.07	0.01
75	1.8	9.7	0.4	0.9	2.04	0.02
	3.1	3.8	0.3	0.1	0.72	-
	2.1	1.5	0.2	1.4	2.43	0.01
81	1.6	7.2	-	-	0.53	0.01
	2.0	4.3	0.1	0.1	0.10	-
	1.3	6.3	0.7	0.4	0.82	0.01
	2.0	3.2	0.1	0.5	0.77	0.01
85	1.6	2.4	0.2	2.5	7.37	0.13
	1.4	4.8	0.2	0.8	1.36	-
87	4.6	3.2	0.2	-	0.08	-
	1.6	5.9	0.4	-	-	-
	2.3	2.8	0.1	-	0.16	-
	2.7	1.5	0.6	-	0.48	0.01
	1.7	4.3	0.3	-	0.34	-
	1.5	3.2	0.2	-	0.71	0.01
89	1.2	2.7	0.7	0.5	Tr	Tr
	1.4	3.1	Tr	0.2	0.47	Tr
	2.2	2.3	0.5	0.1	0.17	-
	6.7	5.0	0.8	0.1	0.33	Tr
	2.1	10.8	0.4	0.2	0.36	0.01
91	1.7	5.7	0.3	0.4	0.85	0.01
	2.3	3.0	0.3	0.7	0.84	0.01
	2.4	7.0	0.8	0.4	0.62	0.01
93	0.8	19.2	0.3	0.5	2.27	0.01
	1.8	6.5	0.5	0.1	0.59	Tr
	2.1	3.9	0.3	0.2	0.54	-
	4.7	2.7	0.2	0.4	0.40	-
	1.2	8.3	0.5	0.8	0.93	-
	1.6	10.5	0.5	0.2	0.67	Tr
95	1.2	6.1	0.4	0.1	0.35	-
	1.9	3.7	0.7	0.2	0.69	-
	2.8	7.8	0.5	0.5	1.01	0.01
97	2.3	4.0	0.3	0.2	2.93	0.02
99	3.1	1.2	0.3	0.5	2.84	0.02
245	2.5	2.4	0.2	-	-	-
	9.7	2.6	0.1	-	0.04	-
	12.2	4.6	0.7		0.12	Tr
246	5.4	6.0	0.3	0.1	0.15	-
	1.1	2.7	-	-	-	-
	1.9	6.8	0.3	0.1	0.25	-
	1.6	7.6	0.7	0.4	0.78	0.01
	2.3	2.3	0.2	0.1	-	-
247	3.1	5.3	0.2	0.2	0.26	0.01
	4.3	3.4	0.2	0.2	0.49	0.01
-W1	4.3	2.4	0.2	-	0.14	-
	12.2	2.3	0.6	0.1	0.30	0.02
248	3.1	2.3	0.3	-	0.17	-
	1.9	3.2	0.3	-	0.11	-
249	3.7	3.4	0.2	-	0.21	-
	3.7	3.1	-	0.2	0.14	-
250	1.7	3.2	-	0.1	0.05	Tr
	1.0	6.9	0.2	0.3	1.46	0.10
251	1.7	7.2	0.3	-	1.19	0.02
	0.8	4.2	-	0.8	0.24	-
	1.5	6.5	0.2	0.1	0.05	-
	4.8	0.9	0.4	0.1	0.15	-
252	1.7	8.6	0.3	0.7	1.39	0.08
253	0.2	5.7	0.2	0.1	0.16	-
254	5.3	10.5	0.1	0.9	0.74	-
	22.6	2.0	0.1	-	0.12	Tr
inc.	1.8	5.1	0.1	-	0.07	0.04

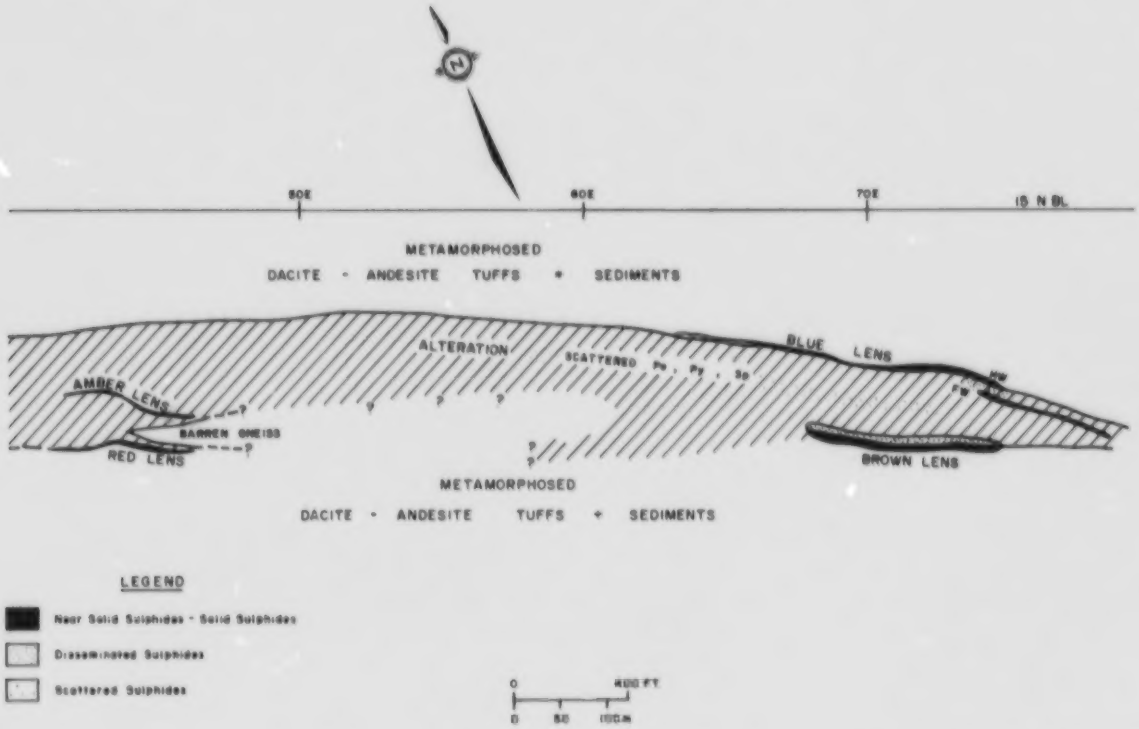


Figure 60. Composite plan, Fon zones (from E. Baumgartner, HBED, personal communication, 1989).

During 1978-82, Hudson Bay performed further EM surveys and drilled at least 11 more holes (totalling 1,066 m) in the vicinity of the showing.

Work since the mid-1970s has defined at least two further lenses about 600 m WNW of the above mentioned drilling.

More recently, geological reserves (undiluted) have been estimated for the Fon Zone as follows (E. Baumgartner, HBED, personal communication, February 26, 1990):

Lens	Tons	Zn(%)
Blue (HW)	510,000	8.1
Blue (FW)	209,000	7.6
Brown	3,438,000	2.4
Amber	457,000	6.1
Red	512,000	13.4
Total	**5,126,000**	**4.6**

Geology and Mineralization: The Fon deposit is hosted within west-northwest trending, northerly dipping Aphebian Amisk Group volcanics of the Flin Flon Domain (Fig. 37). The volcanics comprise mainly fine grained dacite-andesite volcaniclastics (tuffs?) that are intercalated with volcanogenic sediments. The rocks have attained greenschist to lower amphibolite facies metamorphism.

The deposit comprises at least four main lenses, namely the Blue, Brown, Amber and Red Lenses. Details regarding the geology of the deposit are currently not available. The following is based upon information supplied to the writer by Hudson Bay Exploration and Development (E. Baumgartner, personal communication, 1990).

The lenses occur within a zone of alteration approximately 1,100 m long and 100 m wide that extends from surface to a depth of more than 600 m (Figs. 60 and 61). The mineralized lenses dip steeply north. Individual lenses range from 100 to 250 m in length and are typically less than 5.0 m wide.

The Blue Lens, comprising separate footwall and hanging wall lenses, lies at, or close to, the hanging wall margin of the alteration whilst the

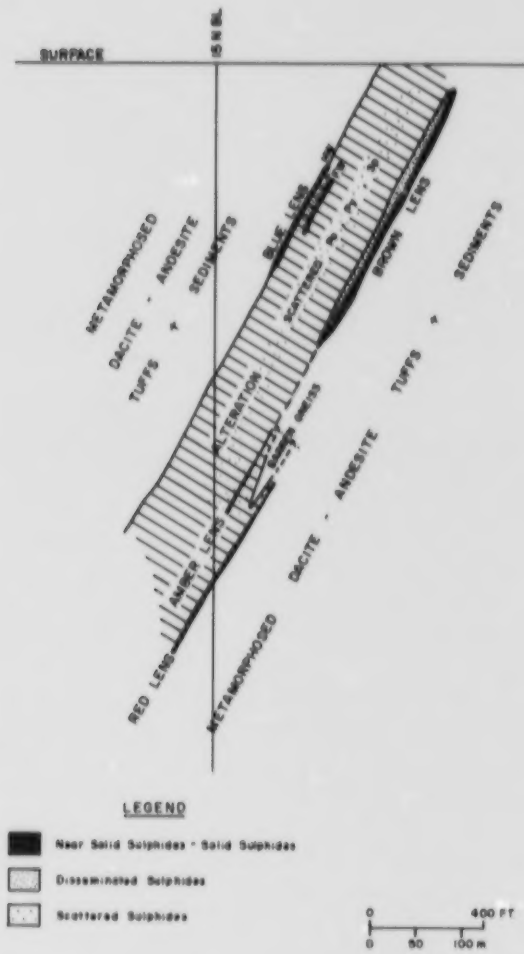


Figure 61. Composite cross section, Fon zones (from E. Baumgartner, HBED, personal communication, 1989).

underlying Brown Lens lies at, or close to, the footwall margin of the alteration.

The Amber and Red Lenses lie below a depth of ±350 m (?) approximately 650 m WNW of the Blue and Brown Lenses. Both the Amber and Red Lenses lie close to the footwall of the alteration zone (Fig. 61).

The mineralized lenses comprise disseminated to massive sulphides. The latter are formed predominantly by pyrrhotite, pyrite, sphalerite, chalcopyrite and minor galena.

Few details are available regarding the alteration zone. Sericitization and chloritization are widespread. Staurolite, garnet and actinolite-tremolite (anthophyllite ?) are commonly reported in drill logs. Pyrrhotite, pyrite and sphalerite are typically scattered throughout the alteration.

Remarks: The geological setting (i.e. mainly a thick felsic-intermediate volcaniclastic pile), mineralogy (i.e. zinc dominance) and alteration (i.e. staurolite, garnet, chlorite, etc.) of the Fon deposit prompt a direct comparison with certain deposits in the Snow Lake area of Manitoba, especially the Chisel Lake deposit.

References: SEM Assessment Files 63-L-16-0043, -0053, SMI-0304

63-M-01-SE

Name: **DRS (Schotts Lake)**

Location: Approximately 250 m west of the northernmost (central) arm of Schotts Lake (Location 4, Fig. 13)

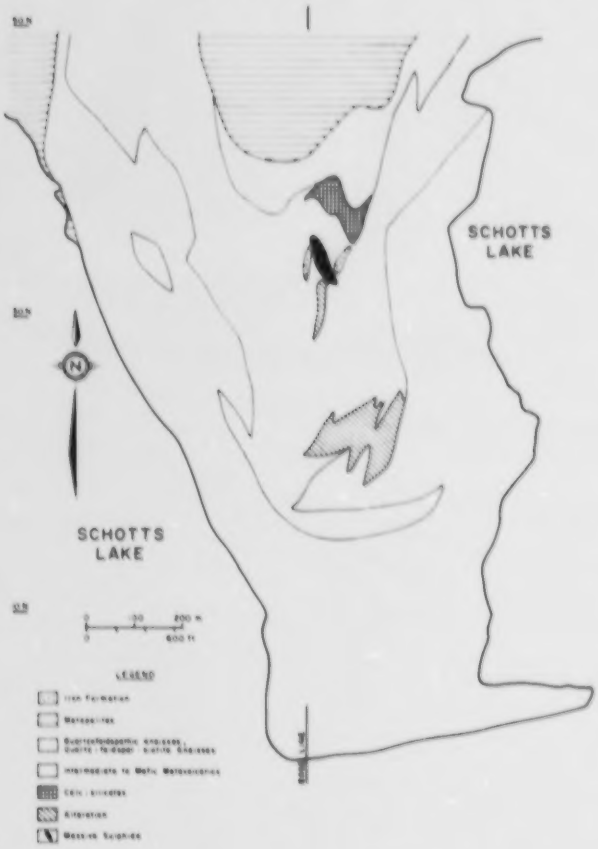


Figure 62. Geology in the vicinity of the DRS (Schotts Lake) deposit (after Pearson, 1986).

History and Development: Mineralized gossans were first identified in the vicinity of the deposit in 1953 by prospectors Rapson and Dubois. The DRS claims were staked by J.A. Syme in September, 1953. Syme drilled seven holes (totalling 49.5m) in early 1954. In June, 1954 Hudson Bay Mining and Smelting optioned the property and carried out ground EM surveys and diamond drilling between June, 1954 and June, 1955. A total of 32 holes (totalling 3,116 m) were drilled in the general area of the showing; 17 holes were drilled into the deposit. Reserves were estimated at 925,000 tons averaging 1.16% Zn, 0.64% Cu, 0.20 oz/ton Ag and 0.006 oz/ton Au. Hudson Bay dropped the option in June, 1955.

Kay Lake Mines Ltd. (renamed Scope Resources Ltd. in 1968) subsequently optioned the property and conducted a ground magnetometer survey and drilled 31 holes (totalling 3,764 m) between 1954 and 1957. In 1960, Schotts Lake Mines Ltd. (renamed Truimph Resources Ltd. in 1969) was formed and acquired the property. The company estimated reserves at 1,000,000 tons averaging 1% Cu, some Zn and minor Ag and Au values.

International Minerals Corporation optioned the property in 1966 and drilled two holes (totalling 610 m). In 1969, the property was optioned to Scope Resources Ltd. and Stall Lake Mines Limited (on a 50:50 basis) who drilled 26 additional holes (totalling 3,314 m) during 1968-1970. Subsequently, Stall acquired an additional 20 per cent interest from Scope. The deposit is currently owned by Stall Lake Mines Limited (70%) and New Scope Resources Ltd. (30%).

At the completion of the 1970 drilling, drill-indicated reserves were estimated at 2,186,056 tons averaging 0.61% copper and 1.35% zinc (**Canadian Mines Handbook**, 1989-90). Precious metal values are apparently negligible.

Geology and Mineralization: The DRS deposit occurs in complexly folded volcanic- and volcaniclastic-derived gneisses of the Kisseynew Domain. These rocks appear to form part of the Nokomis succession (i.e. equivalent to the Amisk Group?), however the more psammitic rocks may include Sherridon-type rocks as well. The rocks have been subjected to upper (?) amphibolite facies metamorphism.

The deposit lies on the limb of a parasitic Z-fold, that is developed on the eastern limb of a major, northeasterly plunging, gently inclined synform (Fig. 62).

The mineralization is hosted within quartzofeldspathic gneisses (that include both arkosic and rhyolitic precursors?) that are structurally underlain predominantly by hornblende-plagioclase gneisses (mafic volcanics?) and overlain mainly by quartz-feldspar-biotite-garnet gneisses (pelites?).

Pearson (1986) reports that a footwall alteration zone underlies the overturned deposit. The latter comprises mainly discordant lenses of a distinct poikiloblastic hornblende-plagioclase-quartz(-garnet-cummingtonite-anthophyllite) gneiss. Sillimanite and garnet distribution within the host quartzofeldspathic gneisses is also believed to reflect this alteration.

The south-southeasterly trending deposit dips approximately 18 to 20 degrees to the northeast. It ranges from 55 to 150 m in length, varies considerably in width (up to 26 m) and extends down dip at least 640 m (about 200 m vertical depth).

Mineralization is formed by semi-massive to massive pyrrhotite and pyrite with subordinate chalcopyrite and sphalerite.

Remarks: The geological setting and presence of a footwall alteration zone suggest the deposit is a proximal VMS.

References: Beck (1959), Cheesman (1956), Pearson (1986), Saskatchewan Geological Survey (1987), SEM Assessment Files 63-M-01-SE-0016, -0018, SMI-0320

63-M-04-NE

Name: **HBED (Gee Lake)**

Location: 3.25 km east of Horst Lake, approximately 30 km west of Pelican Narrows (Location 14, Fig. 12)

History and Development: In 1965 Hudson Bay Exploration and Development staked the Sad claim group over much of the Keg-Sadler greenstone belt. In 1965-66 ground EM surveys were carried out. These were followed by anomaly drilling in 1967-68. A total of 27 holes (2,213 m) were drilled throughout the area. Seven holes (Sad 74-75, 90-94; totalling 890 m) were drilled into the deposit. Holes 91 and 92

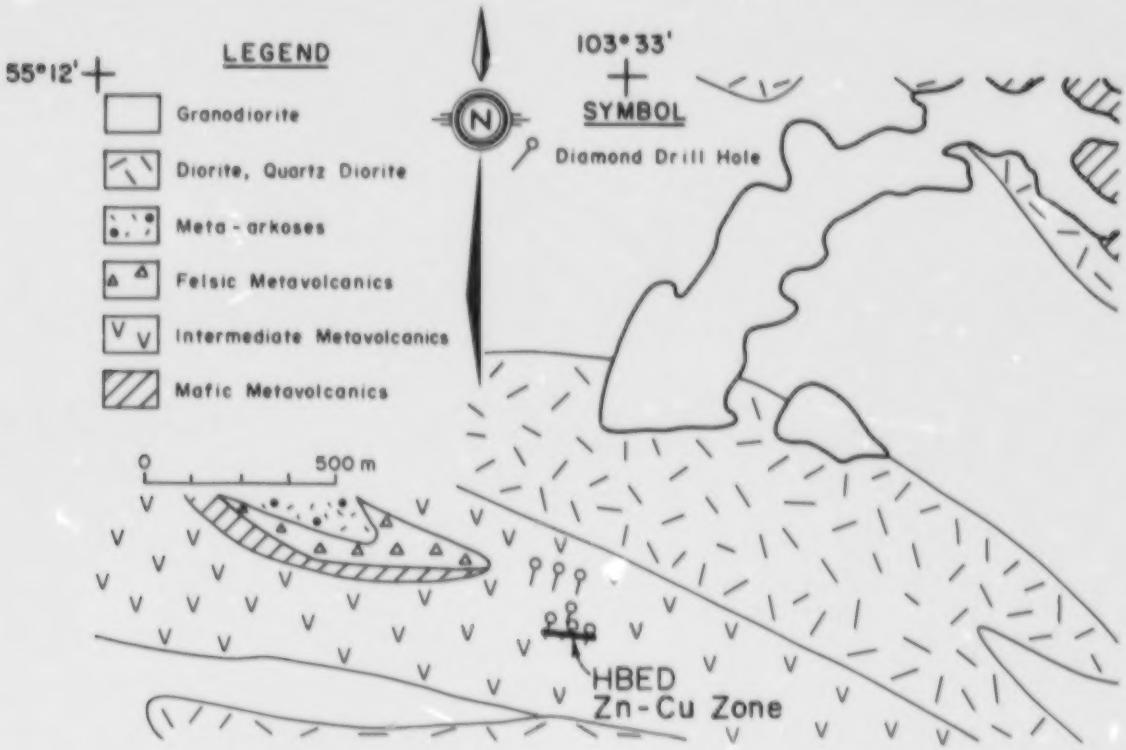


Figure 63. Geology and diamond drilling, HBED deposit (geology after Slimmon, 1988).

returned 4.17% Zn and 0.24% Cu over 5.0 m and 3.5% Zn and 0.91% Cu over 4.7 m respectively. The ground was subsequently allowed to lapse.

In 1983 a Comaplex Resources International Ltd. - Wapa Minerals Ltd. joint venture staked the HBED showing and during 1983-88 performed ground geophysical surveys over the property. In 1983, drill-indicated reserves were estimated as 650,000 tons grading 3.0% Zn and 0.5% Cu.

Geology and Mineralization: The deposit is hosted within east-southeast trending Aphebian (?) volcanics of the Keg-Sadler greenstone belt.

Recent mapping by the Saskatchewan Geological Survey (Slimmon, 1988) indicates that the enclosing rocks form part of a narrow supracrustal septum separated from the main belt to the north. The rocks are primarily intermediate volcaniclastics, that include both pyroclastic and volcanogenic units. Felsic volcanics occur immediately west of the deposit.

The rocks have undergone polyphase deformation and have attained lower to middle amphibolite facies metamorphic grade.

The mineralized zone comprises an approximately tabular body that trends east-southeast and dips 55 degrees to the north. The deposit is approximately 120 m long and varies from 1.0 to 6.5 m wide. It plunges about 50 degrees to the west and extends down plunge for more than 300 m.

Mineralization is formed by disseminated to massive pyrite, pyrrhotite, sphalerite, chalcopyrite and rare galena. The sulphides are hosted in quartz-sericite schist with variable talc, chlorite and staurolite that may represent wall rock alteration.

References: Scott (1981), Slimmon (1988), SEM Assessment Files 63-M-04-0003, -0004, SMI-0343

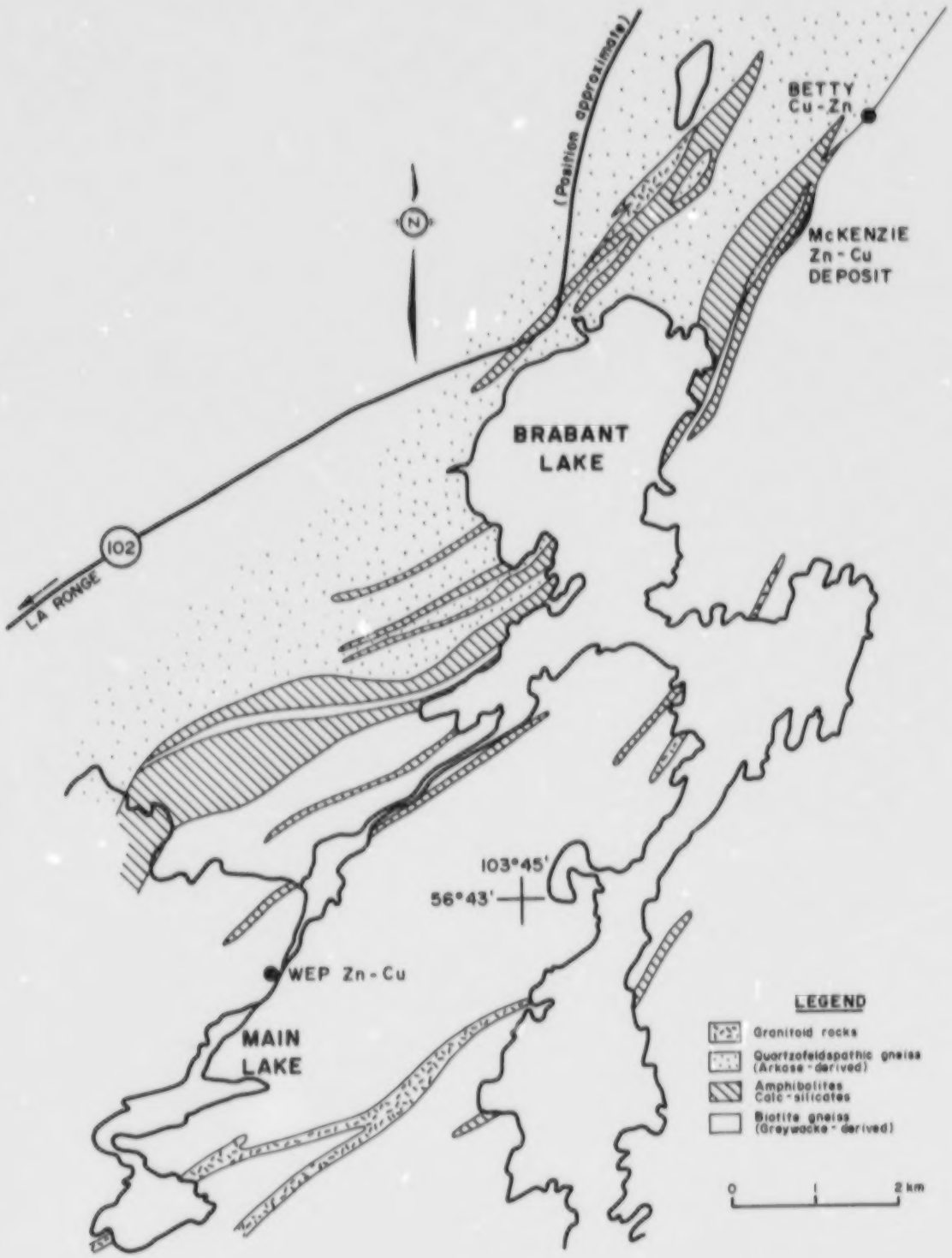


Figure 64. Geology and mineral occurrences in the vicinity of Brabant Lake (geology after Kirkland, 1959).

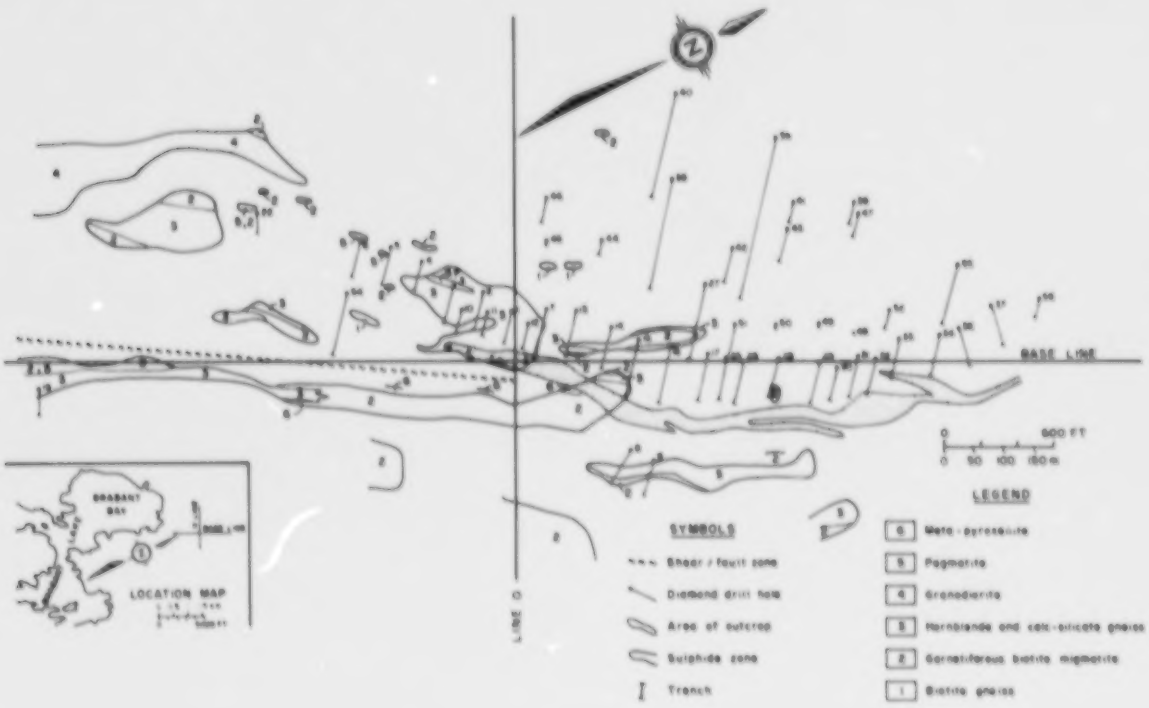


Figure 65. Geology and diamond drilling, McKenzie deposit (geology after Johnston, 1972).

64-D-04-SE

Name: **McKenzie (Peg, Brabant Lake)**

Location: 1.5 km northeast of Brabant Lake, approximately 145 km northeast of La Ronge (Location 15, Fig. 12)

History and Development: The McKenzie deposit (Fig. 64) was discovered by prospector Lawrence McKenzie prior to 1956. That year, the area was staked as the Peg claims for a syndicate by M. Murtak who optioned the property to a Paramount Petroleum and Mineral Corporation Limited-Westore Mines Limited Joint Venture.

From 1956-58, the joint venture carried out magnetometer and electromagnetic geophysical surveys, prospecting and trenching, and drilled 39 holes (4267 m). The drilling tested the mineralized zone over a strike length of 1000 m and to a vertical depth of 300 m (Figs. 65 and 66). In 1962, the reserves were estimated at 5,750,000 tons grading 4.84% Zn and 0.57% Cu to a vertical depth of 300 m.

In 1964, Westore Mines drilled two further holes (totalling 962 m), proving the mineralization continued to a vertical depth of 450 m (Fig. 66). The same year, Rio Tinto Canadian Exploration Ltd optioned the property from Westore and in 1965-66 drilled an additional 11 holes (3092 m). Reserves were re-estimated at 4,330,000 tons grading 4.32% Zn and 0.64% Cu.

A 160 lb. sample sent to the federal Department of Mines and Technical Surveys in 1965 returned 2.28%Zn, 0.66% Cu, 0.065% Pb, 0.10% Ni, 0.0025 oz/ton Au, 0.55 oz/ton Ag and 8.9% Fe. The work achieved high copper and zinc concentrates, but copper and zinc recoveries were low.

No further work was reported in the area until 1982, when SMDC conducted prospecting, geological mapping, and bedrock and lake sediment sampling in the area.

Gamsan Resources Ltd. acquired a 100% interest in the property in 1988. During 1988-89 the company conducted geochemical and geophysical surveys and drilled 18 holes (3716 m?).

Figure 66. Diamond drill hole longitudinal section, McKenzie deposit (from SEM Assessment Files 64-D-04-0018, -0035).

In May, 1989 reserves were given as:

Cut-off %Zn	Tons	Zn (%)	Cu (%)	Pb (%)	Ag (oz/ton)	Au
2%	4,073,392	4.84	0.55	0.27	0.54	0.005
5%	1,400,019	6.50	0.61	0.29	0.67	0.007
8%	239,092	9.65	0.74	0.20	1.03	0.006

including a lower zone with:

Cut-off oz/ton Ag	Tons	Zn (%)	Cu (%)	Pb (%)	Ag (oz/ton)	Au
1.75	366,836	3.59	0.51	1.34	2.23	0.019

Geology and Mineralization: The McKenzie deposit is hosted within northeast trending, northwest dipping "Kisseynew-type" gneisses of the interarc MacLean Lake Belt of the Reindeer Zone. It occurs within intercalated, variably garnetiferous, biotitic and hornblendic (and calc-silicate) gneisses near the top (?) of the MacLean Lake Gneisses, close to the contact with the overlying psammitic gneisses of the McLennan Group (Fig. 65). The gneisses have been metamorphosed to upper amphibolite-granulite facies.

The mineralization is mainly within fractured pegmatite, which forms a conformable layer, 3 to 10 m wide, within the biotite gneisses. The mineralized pegmatite dips approximately 45 degrees to the northwest and appears to occupy a trough or warp. Biotite gnesses (locally containing sillimanite) form both footwall and hanging wall rocks for much of the mineralized zone. Footwall gneisses contain conspicuously more garnet. Hornblende gneiss units occur in both the footwall and hanging wall rocks.

The pegmatite comprises mainly quartz, K feldspar, plagioclase and minor biotite. Non-mineralized pegmatite is typically white/grey to pink. Mineralized pegmatite is distinctly greenish colored, due to chloritization and the common presence of accessory gahnite (zinc spinel).

Primary sulphide minerals are pyrrhotite, sphalerite, pyrite, chalcopyrite and galena. Secondary minerals, restricted to the top 50 m of the deposit, include covellite, colloform pyrite, native copper and malachite.

The sulphides form lenses and podiform masses, concordant and discordant veins and disseminations, mainly within the pegmatite but also, to a lesser degree, in the host biotite gneisses.

There is not much available information regarding the geometry of the mineralized zone. According to recent news releases, there are two mineralized horizons present in the deposit: an upper zone (with base metals and negligible precious metals) and a lower zone (with base and precious metals).

Remarks: Several points are interesting regarding the McKenzie deposit:

1. The writer has observed unequivocal, pillow-like structures in the amphibolitic rocks, suggesting derivation, in part at least, from volcanic precursors.

2. The deposit occurs within a very steep metamorphic gradient, i.e. the grade increases dramatically from the lower amphibolite facies of the La Ronge volcanics (to the northwest) to local granulite facies conditions (to the southeast).

3. The presence of gahnite suggests zinc sulphide-silicate reaction during metamorphism, i.e. the mineralization is likely, in part, pre-metamorphic.

4. More abundant garnet in the footwall rocks is suggestive of footwall alteration.

5. There is marked similarity in the geological setting of the McKenzie deposit to certain deposits in the former-producing Sherridon area of Manitoba, e.g. the Bob Lake deposit.

References: Beck (1959), Byers (1959), Johnston (1969, 1972), Kirkland (1959), Saskatchewan Geological Survey (1987), SEM Assessment Files 64-D-0001, -0004, 64-D-04-0006, -0008, -0016, -0035, **The Northern Miner** (May 15, 1989), Gamsan News Release (May 4, 1989), SMI-0446

64-E-05-NE

Name: **George (Brakewell) Lake**

Location: Southwest end of George (Brakewell) Lake (Compulsion River), (Location 9, Fig. 8; Fig. 10)

History and Development: Sphalerite- and galena-bearing boulders were initially discovered by prospector George Flatland, working in association with E.F. Partridge, three to eight kilometres southwest of George Lake in June, 1965. Further reconnaissance prospecting located numerous mineralized quartzite boulders over a trend extending about 15 km to the southwest and 40 km to the northeast of George Lake. A glacial dispersion fan of higher grade boulders was outlined immediately adjacent to the southwest end of George Lake. Two short 'X-ray' holes (totalling 111 m) and several pits failed to disclose any mineralization in place.

In the summer of 1965, Falconbridge Nickel Mines Ltd. staked a large claim group to cover

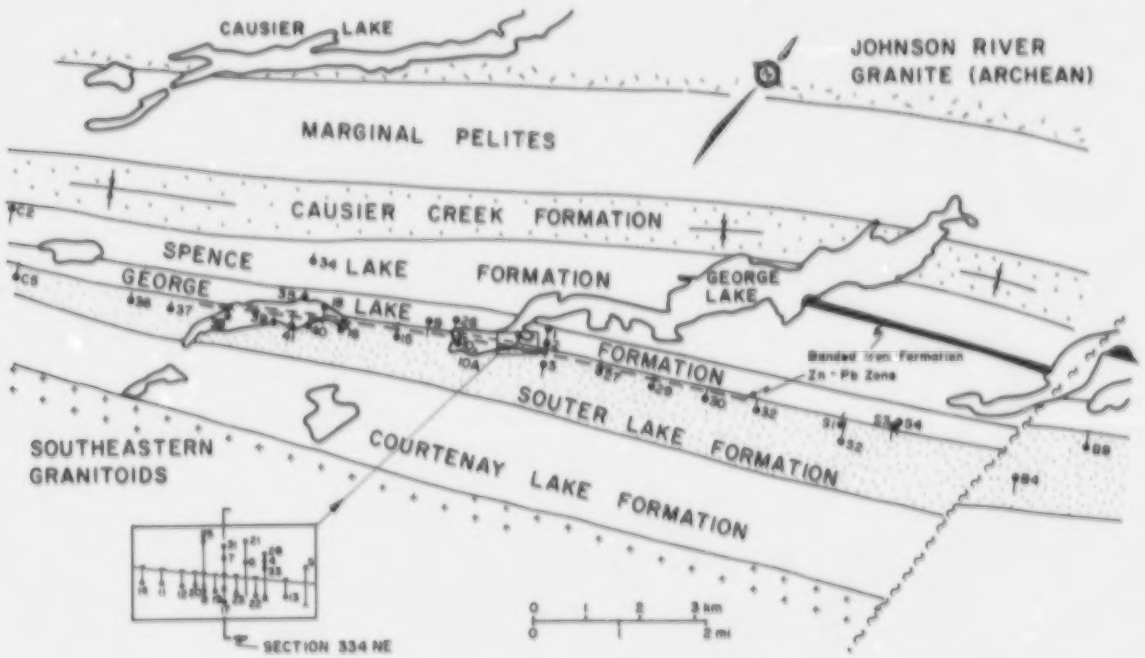


Figure 67. Geology and diamond drilling in the vicinity of the George Lake deposit (geology after Coombe, 1979, 1983).

the possible source. The following year the company performed regional and detailed mapping of surficial and bedrock geology, geophysical and geochemical surveys and diamond drilling. Mineralization was discovered in place in October, 1966.

During 1966-70, Falconbridge drilled 63 holes (totalling 10,125 m) to test a prospective horizon over a strike distance of about 15 km; 17 of these holes were drilled to evaluate the George Lake deposit. Most of the holes drilled on the deposit intersected mineralization at depths of 45 m to 60 m; three deeper holes proved the mineralization extended below a depth of about 150 m.

Published drill-indicated reserves (to a maximum depth of 400 m) are reported as 5,000,000 tons grading 2.65% Zn and 0.38% Pb (based on a 1% Zn cut-off), including a higher grade zone containing 2,900,000 tons grading 3.67% Zn and 0.53% Pb (based on a 2% Zn cut-off). Non-published drill-indicated reserves are 13,368,249 tons grading 2.76% Zn and 0.36% Pb (based on a 1% Zn cut-off), including 7,762,549 tons grading 3.86% Zn and 0.49% Pb (based on a 2% Zn cut-off) (from private files of the author).

In 1974, the Saskatchewan Research Council conducted a geochemical study over the area of the glacial fan. In 1977, the author carried out geological investigations in the area on behalf of the Saskatchewan Geological Survey. No further work has been reported on the deposit.

Geology and Mineralization: The George Lake deposit is hosted within psammitic rocks (quartz arenites to subarkoses) that form the basal unit (referred to here as the Souter Lake Formation) of the Aphebian, miogeoclinal, epicratonic Wollaston Group (Fig. 67).

In the George Lake area, the Wollaston Group (referred to variously as the Courtenay-Cairns Lake Belt or the Compulsion River Belt) occupies a major synformal structure, namely the Spence Lake Synform. The supracrustals within this structure, lying further east than the main part of the Wollaston Domain, are generally only mildly deformed and exhibit low metamorphic grade of upper greenschist to lower amphibolite facies.

The George Lake deposit is essentially concordant with the enclosing host rocks. It is approximately lensoid and about 800 m long and up to 40 m wide. The mineralization is markedly stratiform and confined to the uppermost part of the Souter Lake Formation, immediately below the contact with overlying argillites and silstones of the George Lake Formation (Fig. 68).

The upper part of the Souter Lake Formation is formed by a 100 m thick sequence of massive, poorly sorted white/grey quartzite (quartz arenite to subarkose; 85-90% quartz) with subordinate intercalations of darker grey, biotitic quartzite (quartz-wacke; 70-80% quartz) that is overlain by a 15 m thick, laterally persistent, thinly bedded quartzite. This marker unit is overlain, in turn, by a biotitic quartzite that exhibits rapid lateral thickness variations (0 to 12 m) and forms the uppermost straigraphic unit of the Souter Lake Formation.

The mineralization is restricted to the uppermost 60 m of the white/grey quartzite interval. It terminates abruptly at the contact with the overlying thinly bedded quartzite; in places the upper limit of the mineralization lies within the white/grey quartzite. The lower limit of the mineralization is gradational. Within the white/grey interval, the grade of mineralization is generally markedly lower in the intercalated biotitic quartzites.

The mineralization is formed by pyrite, sporadic pyrrhotite, sphalerite and galena. The sulphides occur as disseminated interstitial grains and , more rarely, as fine fractures. They rarely comprise more than 20 per cent by volume.

Remarks: Of interest, the mineralized horizon at George Lake is estimated to contain about 200 million tons grading ±1.0% Zn over a strike length of approximately 8.0 km (author).

The geological setting of the George Lake deposit, and style of mineralization, indicate the deposit is a classical 'sandstone-type' deposit. As in similar deposits elsewhere, the cleaner and better sorted facies of sands tend to carry the higher grade mineralization. At George Lake the host sands may represent paleo-channels within a distributary system.

References: Coombe (1977, 1979, 1983), Haughton (1976), Karup-Moller (1970), Karup-Moller and Brummer (1970), Scott (1970), Saskatchewan Geological Survey (1987), SEM Assessment Files 64-E-05-0006, -0007, -0008, -0009, -0010, -0013, -0014, -0016, -0019, -0026, 64-E-12-0028, SMI-0663

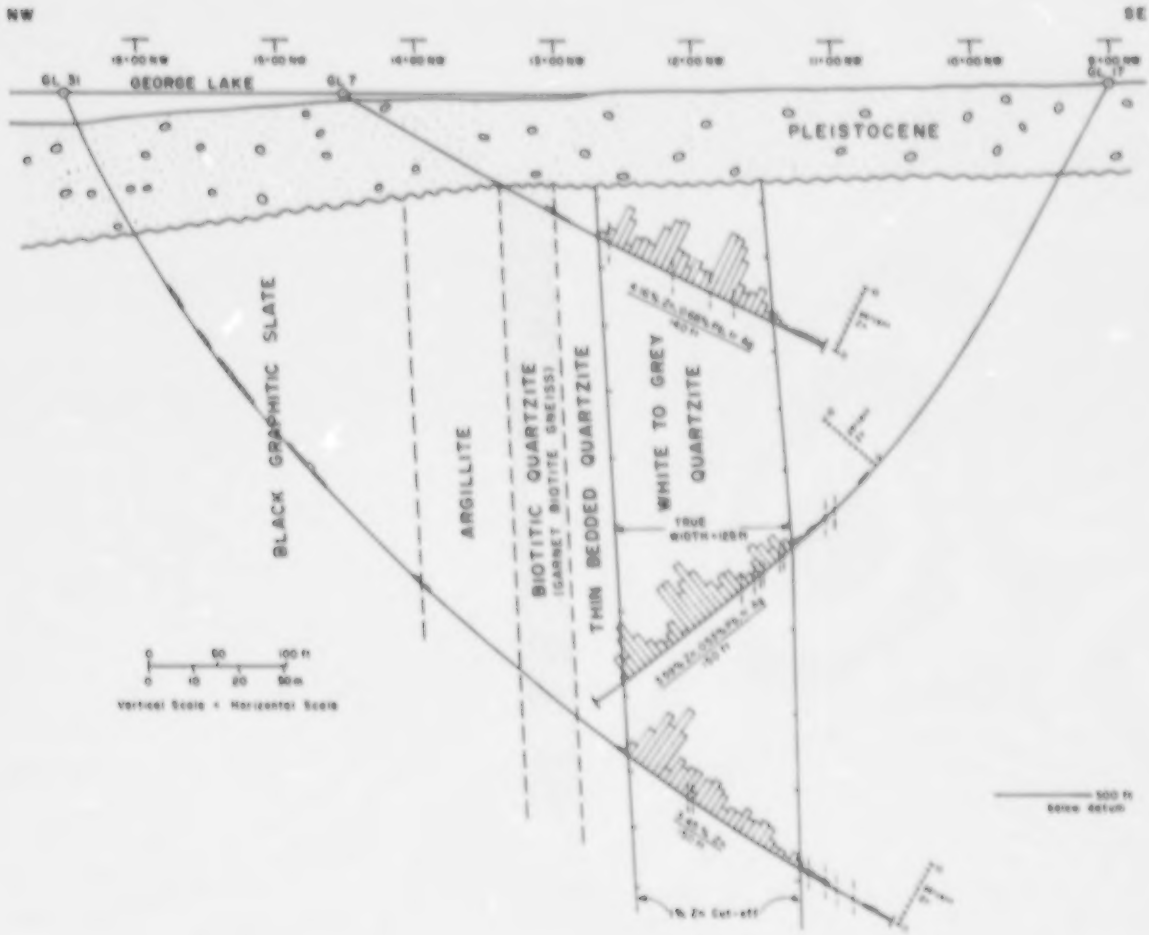


Figure 68. Diamond drill hole cross section 334N, George Lake deposit (compiled from SEM Assessment Files).

73-P-10-NW

Name: **Will (Borys Lake, Main Zone)**

Location: Northwest shore of Borys Lake, a small lake about 1.5 km north of Nipew (Dead) Lake and approximately 75 km NNE of La Ronge (Location 16, Fig. 12)

History and Development: In 1956, prospector W. McLeod discovered a large mineralized glacial boulder on the southeast shore of a small island in the southwest part of Dead Lake, about 6.4 km south-southwest of Borys Lake. A grab sample from the boulder assayed 13.5% Zn, 13.4% Pb, 4.42 oz/ton Ag and 0.02 oz/ton Au.

Two years later, McLeod discovered an outcrop of similarly mineralized rock immediately northwest of Borys Lake. In the same year, B.R. Richards staked the Will claims over the showing and conducted geological mapping and magnetometer and vertical loop EM geophysical surveys. One 'X-ray' hole (36 m) intersected significant sphalerite mineralization; assays returned 5.1% Zn and 0.17 oz/ton Ag over 11.6 m.

In 1958-59, Embassy Mines Ltd. drilled 15 holes (totalling 1,257 m) on the Mac claims over the northeastern extension of the mineralized zone (Fig. 69). The drilling encountered discontinuous mineralization and traced the host shear zone over a length of 1,000 m. (See 73-P-10-NW, Mac showing for further details)

In 1963-65, McIntyre Porcupine Mines Ltd. optioned the property and conducted trenching and sampling and EM surveys over the Will claims and the Can claims (covering the southwestern extension of the shear). Mineralization was proven to extend over a length of more than 4.5 km.

Two trenches (3 and 4) were emplaced on the Main Zone. The best results were returned from Trench 4, which assayed 8.46% Zn, 0.60% Pb and 0.54 oz/ton Ag over a width of 2.3 m.

Six holes (totalling 472 m) were drilled along the mineralized structure. Three of the holes (C-1 to C-3) were drilled on the Can claims about 2.4 km southwest of Borys Lake (Fig. 69) and encountered weak mineralization over a strike length of 200 m (see 73-P-11-NE, Can showing for further details).

The other three holes (W-1 to W-3) were drilled on the Main Zone in the vicinity of Trench 4 (on the Will 3 and 4 claims), immediately north of Borys Lake (Fig. 70). They returned the following:

Ddh	Width (m)	Zn (%)	Pb (%)	Cu (%)	Ag (oz/ton)	Au (oz/ton)
W1	23.6	3.44				
inc	8.4	4.69	0.44		0.48	Tr
W2	5.8	2.21	0.10		Tr	Tr
W3	12.2	5.00		0.09		-
inc	6.1	7.30	0.84	0.07	0.83	-
	7.6	2.75	-		-	-

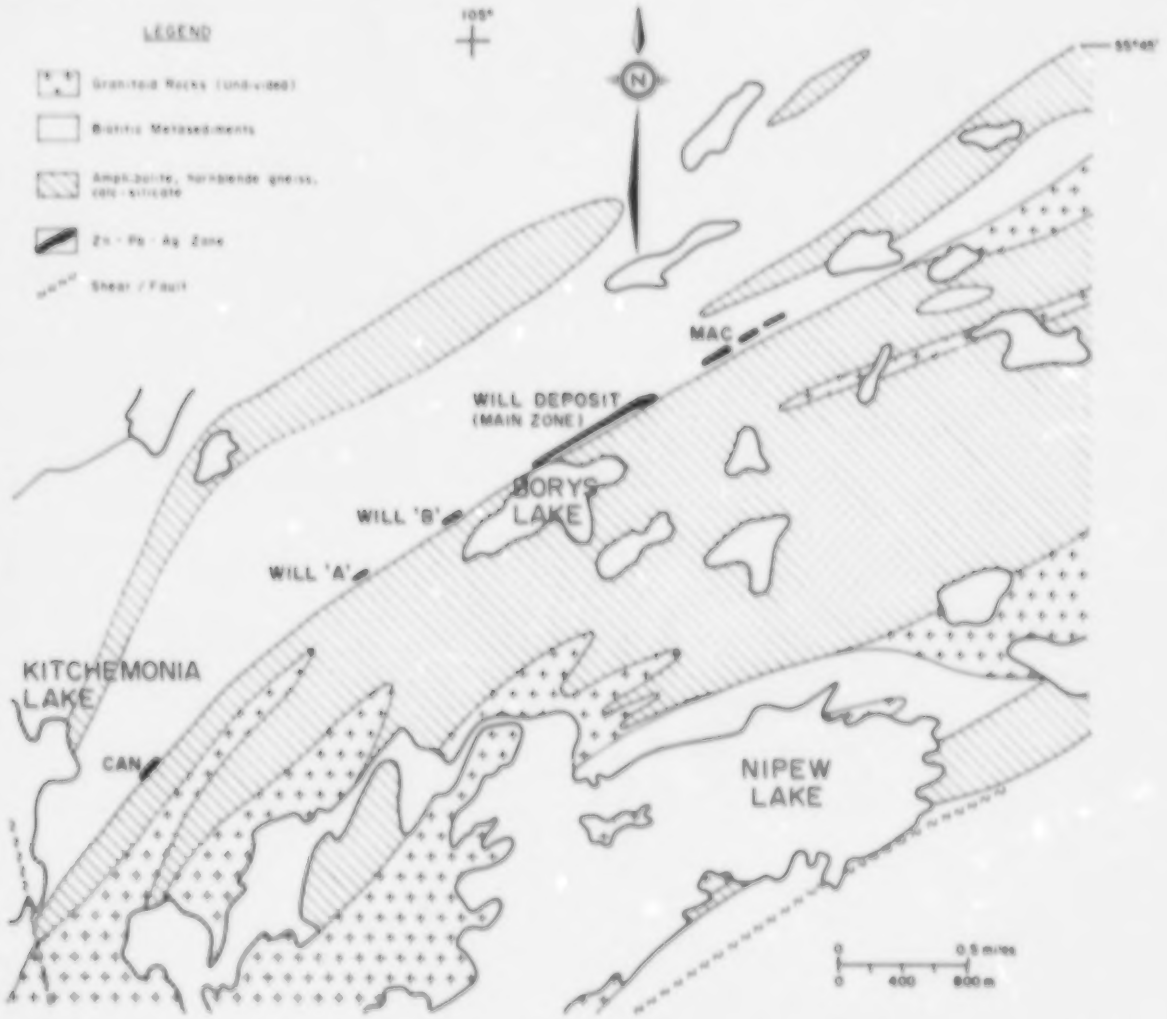
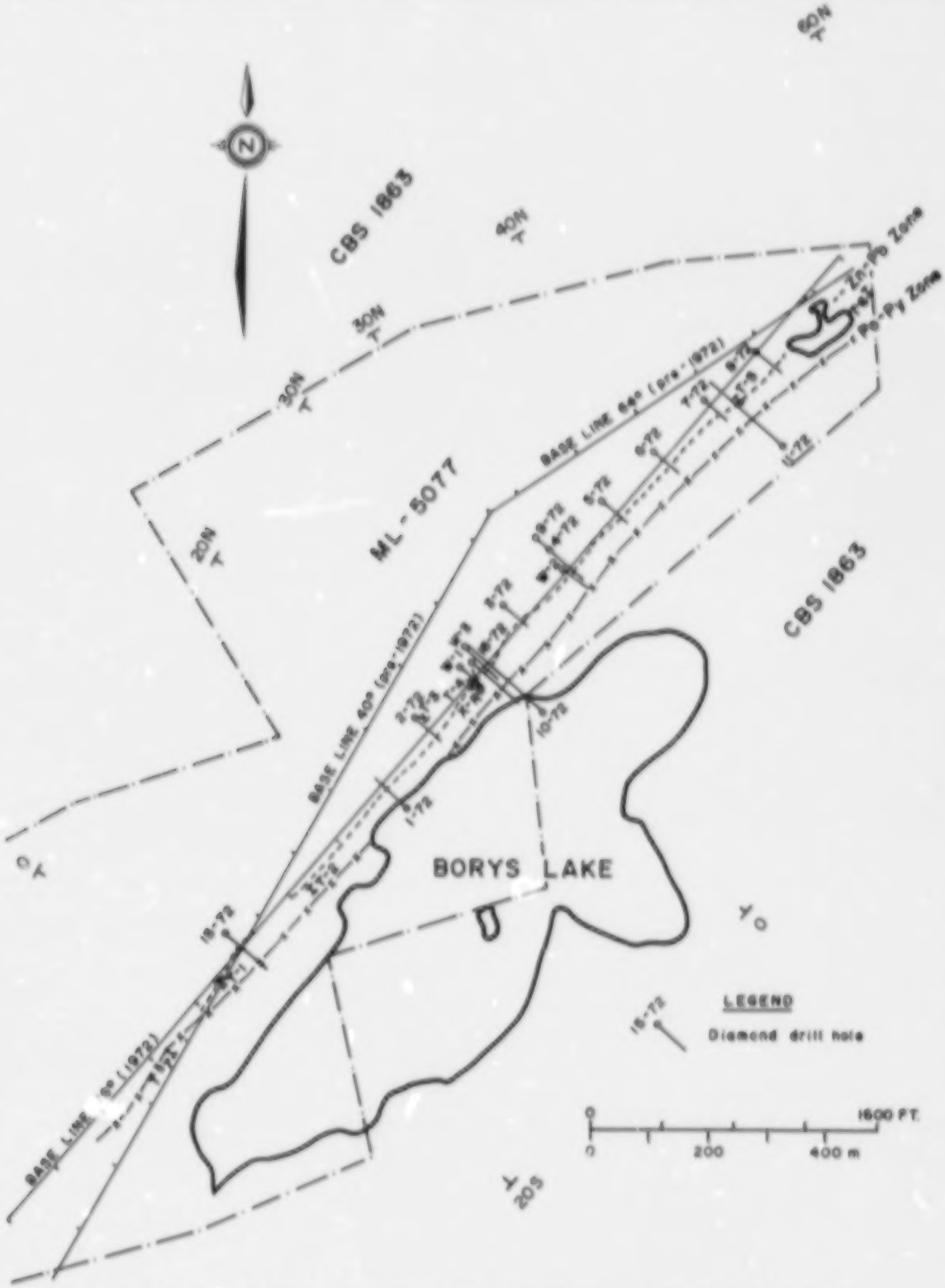


Figure 69. Geology and mineral occurrences in the vicinity of Borys Lake (geology after Morris, 1960 and Padgham, 1960).



70. Plan of diamond drilling, Main Zone, Will deposit (compiled from SEM Assessment Files 73-P-10-0070, -0071).

In 1967, Noranda Exploration Co. Ltd. performed ground EM surveys and drilled 25 short holes on the Kie claims to test EM conductors in the general area of the deposit. No significant mineralization was encountered.

The Mac and Can claims were allowed to lapse and were restaked as CBS 1863 in 1971 by B.R. Richards. That year Husky Oil Operations Ltd. optioned CBS 1863 and the Will claims.

In 1971-72, Husky conducted geological mapping, trenching and sampling, geochemical, ground magnetometer and EM surveys, and drilled 16 holes (totalling 1,624 m).

Eleven shallow holes (1-72 to 11-72, totalling 1,247 m) were drilled on the 975 m long 'Main Zone', immediately north and northwest of Borys Lake (Fig. 70). The drilling indicated an average grade of 1.65% Zn over an average true width of 12.2 m for the 975 m length of the Main Zone. The best intersection was returned from hole 4-72 which assayed 2.09% Zn, 0.11% Pb, 0.06% Cu and 0.19 oz/ton Ag over 14.9 m.

Of the other five holes, four (12-72 to 15-72 inc.) were drilled along the immediate southwestern extension of the 'Main Zone' and encountered only minor zinc, lead and copper values.(See 73-P-11-NE, Will A and Will B showings for further details)

The remaining hole (16-72) was drilled in the vicinity of the 1965 drilling (i.e. close to W-1 and W-3) on the 'Main Zone' and returned 3.50% Zn, 0.28% Pb, 0.11% Cu and 0.41 oz/ton Ag over 24.7 m (16.0 m true width).

The drilling indicated the 'Main Zone' is approximately 975 m long and 5.3 m to 19.5 m wide with drill-indicated reserves (to a vertical depth of 30 m) of 1,336,500 tons grading 1.91% combined Zn and Pb (indicated Zn:Pb ratio is about 10:1 – author). The highest grade intersections were found over a strike length of about 90 m towards the southwest end of the 'Main Zone' (named the No. 1 Lens).

In 1982, Bonn Energy Corporation optioned CBS 1863 (now ML 5324), that included the former Mac and Can claims, and conducted geological mapping, prospecting and magnetometer and EM surveys over the southwestern portion of the property, i.e. southwest of the 'Main Zone'. In 1987, Claude Resources Inc. conducted ground magnetometer and VLF-EM surveys over the area including the Borys Lake deposit.

Geology and Mineralization: The Borys Lake deposit occurs within northeast trending, steep northwesterly dipping supracrustal rocks at the eastern margin of the Crew Lake Belt of the La Ronge Domain (Fig. 69). These rocks comprise mainly hornblendic and psammopelitic biotitic gneisses that are variably migmatized. The gneisses have suffered at least one major phase of folding and have attained upper amphibolite facies metamorphism.

The deposit lies on the northwestern limb of a major antiform. The core of the antiform, southeast of the deposit, is occupied by predominant hornblendic gneisses. Biotitic gneisses predominate to the northwest of the deposit.

The immediate vicinity of the deposit is underlain by intercalated biotitic gneisses, hornblendic gneisses and 'granulites', calc-silicates and 'quartzites'. These rocks are invaded by a sill-like body of granodiorite southwest of Borys Lake.

Footwall rocks are mainly hornblendic but include intercalations of biotitic gneiss and 'quartzite'. The latter, 9 to 24 m thick, lies 45 m to 120 m structurally below the 'Main Zone' mineralization and includes laterally persistent, conformable pyrrhotite-pyrite-graphite mineralization. The hanging wall rocks are formed mainly by biotitic and biotite-hornblende gneisses with subordinate hornblende gneiss and calc-silicate units.

The 'Main Zone' is hosted predominantly within an approximately conformable, northeast trending shear zone, represented mainly by biotite-chlorite schist. Conspicuous wall rock alteration is variably developed along the mineralized zone. The latter comprises mostly silicification, biotitization, chloritization and sericitization, accompanied by minor talc and kaolin. Locally, masses of actinolite-tremolite-diopside form the predominant alteration, especially where galena becomes conspicuous.

Mineralization is formed by pyrrhotite and sphalerite with lesser galena, pyrite and chalcopyrite. The sulphides occur as fine disseminations, isolated blebs and rare veinlets. Locally, massive sphalerite-galena mineralization occurs within quartz-rich veins and lenses (silicification?). The No. 1 Lens apparently plunges 30 to 40 degrees to the

southwest, within the plane of the shear zone.

Remarks: The Borys Lake deposit is poorly understood. Alteration assemblages are clearly not compatible with upper amphibolite facies metamorphism. The deposit may represent a highly metamorphosed volcanogenic deposit, subsequently retrogressed during post-mineralization shearing.

References: Beck (1959), Bienia (1975), Morris (1960), Padgham (1960), Saskatchewan Geological Survey (1987), SEM Assessment Files 73-P-10-0003, -0020, -0055, -0069, -0070, -0071, -0103, 73-P-11-0001, -0003, -0007, -0012, -0020, -0021, -0022, -0032, -0033, -0038, -0039, SMI-0857

Class 2: Prospects

63-K-12-NW

Name: **Rio SW**

Location: About 450 m west of the northern end of Arthur Lake (Location 46, Fig. 37)

History and Development: In 1979, Flin Flon Mines Ltd. drilled a hole (79-4) into the Rio fault, southwest of the Rio gold deposit.

The hole returned 2.0% Zn, 0.92% Pb, 0.11% Cu, 0.04% Cd, Trace Mo, 0.25 oz/ton Ag and 0.01 oz/ton Au over a width of 0.61 m.

In 1987-88, Vista Mines Inc. conducted ground EM and magnetometer surveys over the area of the showing.

Geology and Mineralization: Mineralization is hosted within the Rio fault, a northeasterly trending, intensely silicified and carbonatized zone of shearing. It comprises up to 30 per cent pyrite, sphalerite and sparse chalcopyrite within altered 'porphyritic andesite'.

References: SEM Assessment File 63-K-12-0108, SMI-2167

63-L-08-SE

Name: **Foy Creek (Sturgeon Weir River)**

Location: About 12 km south of the southeastern part of Amisk Lake and about 4 km southwest of the Sturgeon Weir River (Location 12, Fig. 8)

History and Development: In 1976, Consolidated Morrison Explorations Ltd. flew an airborne EM and magnetometer survey over a large permit area south of Amisk Lake. The survey identified an EM conductor (229-1) that was followed up with ground EM and diamond drilling.

Drill hole 229-1 was drilled in 1977 and encountered several weakly mineralized sections. The best intersection assayed 0.92% Zn, 0.03% Cu and 0.06 oz/ton Ag over a width of 1.5 m.

No further work was reported until 1986-87, when Hudson Bay carried out ground EM and magnetometer surveys in the general area.

Geology and Mineralization: The area is underlain by rocks that are correlative with the exposed portion of the Flin Flon Domain. The predominant Amisk Group volcanics, and related volcaniclastics and sediments, lie beneath 15 to 60 m of Paleozoic cover rocks.

The mineralization occurs within pyritic and graphitic units. Pyrite, sphalerite, chalcopyrite and minor galena have been reported.

References: SEM Assessment Files 63-0001, 63-L-08-00013, -0014, -0015, -0016, SMI-1795

63-L-09-SE

Name: **Chamney Island, Amisk Lake**

Location: West shore of a small island about 850 m southeast of Chamney Island, Amisk Lake (Location 47, Fig. 37)

History and Development: A.L. Parres carried out an EM survey in the vicinity of the showing in 1966. In 1972-73, Hudson Bay conducted further EM surveys and drilled five holes in the area.

Hole Cab-23 (226 m) intersected several narrow zones of mineralization. The best assay returned 3.7% Zn, 0.62 oz/ton Ag and 0.16 oz/ton Au over a width of 0.34 m.

No further work was reported until 1981-82, when Hudson Bay carried out check ground EM surveys and drilled one hole (Cab-27; 176 m) on the showing. During 1985-89, Hudson Bay drilled three more holes (Cab-28, -29, -30) on the showing.

Geology and Mineralization: The mineralization is hosted within northerly trending, variably sheared Amisk Group rhyolite. The mineralization comprises pyrite, graphite, arsenopyrite, sphalerite and traces of chalcopyrite. Molybdenite was reported from a narrow shear.

References: SEM Assessment Files 63-L-09-0134, -0195, -0201, -0224, -0267, -0319, -0339, -0351, SMI-0170

63-L-09-NW

Name: **Missi Island (Clare)**

Location: East shore of the south trending bay in the northwest part of Missi Island, approximately 1 km east of the south end of Tarrington Island, Amisk Lake (Location 48, Fig. 37)

History and Development: The first reported work on the showing was in 1925 (on the Beaver claims). During 1925-46, considerable trenching (and two drill holes) was carried out by various operators. In 1949, P. Houlihan restaked the Beaver gold showing as the Last Shot, Pat and Clare claim groups. Between 1949-52, Houlihan drilled eight short holes.

Hole 7 (exact location unknown) intersected 14.2% Zn, 0.16% Cu and traces of Au and Ag over a width of 0.15 m.

In 1954-56, V.D. Colcleugh conducted trenching and drilled one hole in the vicinity of the showing. No further work was reported until 1979-80, when SMDC carried out airborne (INPUT) and magnetometer surveys and drilled 13 holes (763 m) in the general area. In 1983-84, SMDC performed geological mapping and sampling and ground EM, IP and magnetometer surveys in the area. In 1986, Arctic Gold Corporation/SMDC continued geological mapping and carried out a biogeochemical survey over the area.

Geology and Mineralization: The area is underlain by northerly trending, mafic to intermediate Amisk Group flows that are intruded by a variety of porphyritic rocks (predominantly quartz-feldspar porphyry).

Mineralization comprises pyrite, sphalerite and chalcopyrite that occur as narrow, massive veins and within quartz stringers in sheared, schistose andesite.

References: Beck (1959), SEM Assessment Files 63-L-09-0041, -0047, -0245, -0253, -0269, -0292, -0293, SMI-0172

63-L-10-SE

Name: **Balsam Zone**

Location: Approximately 500 m northwest of McDermott Lake, a small lake 9.5 km southeast of Hanson Lake (Location 49, Fig. 37)

History and Development: In 1983, Granges Exploration AB conducted an airborne INPUT and magnetometer survey over the area. During 1983-88, Granges and joint venture partner Troymin Resources Ltd. carried out ground follow-up geophysics and drilled 38 (?) holes in the general area.

The Balsam Zone was discovered in 1984 (?). There are few published results from the drilling. Hole Bal-11 returned 3.3% Zn, 3.3% Cu, 1.53 oz/ton Ag and 0.105 oz/ton Au over 6.5 m. Hole Bal-50 returned 4.69% Zn, 0.21% Cu, 0.60 oz/ton Ag and 0.02 oz/ton Au over 2.8 m.

Geology and Mineralization: As of the date of this report, there are no available details regarding the geology and mineralization at the Balsam Zone.

References: SEM Assessment File 63-L-10-0090, **The Northern Miner** (Jan. 6, 1986; May 9, 1988; Feb. 13, 1989), **Troymin Resources Ltd.** (Corporate Profile, Oct., 1989), SMI-2168

Name: **Grid B Showing (Hobbs Lake)**

Location: 2.7 km east of the northeast end of Hobbs Lake (Location 50, Fig. 37)

History and Development: In 1976, SMDC (now Cameco) acquired ground in the Hanson Lake area and, the following year, flew an airborne electromagnetic and magnetometer survey. During 1982-84, the company carried out follow-up ground geophysical surveys and diamond drilling. The showing was tested over a length of 120 m and to a depth of 230 m. Assays returned up to 3.6% Zn over a length of 1.5 m.

Geology and Mineralization: The showing is hosted within a chlorite schist fault zone. It comprises disseminated pyrite and sphalerite mineralization.

References: Koziol and Ostapovitch (in prep), SEM Assessment Files 63-L-10-0085, -0086, -0087, -0095

63-L-10-NW

Name: **Jackpine Lake**

Location: About 1,250 m WNW of the south end of Jackpine Lake (Location 51, Fig. 37)

History and Development: The area of the showing was initially covered in 1954 by the Jat claims, owned by Parrex Mining Syndicate. Parrex performed an EM survey and drilled three holes in 1957. No significant mineralization was intersected and the claims lapsed in 1964. The claims were restaked in 1965. No assessment work was submitted and the claims lapsed again in 1968.

In 1969, Wollaston Lake Mines Ltd. staked the area and carried out ground EM and SP surveys and trenching and drilled four holes (111 m). Only one hole intersected significant mineralization.

Drill hole 1 (Grid A) returned 0.70% Zn, 0.12% Cu and 0.02% Ni over a width of 1.8 m.

The property was subsequently allowed to lapse in 1971. In 1973, Hudson Bay staked the property and conducted an EM survey. The property lapsed in 1977 and was restaked by Hudson Bay later that year as the Des 133 claim. Hudson Bay drilled one hole (44 m) on the claim in 1977.

Hole Des-112 returned 0.40% Zn and 0.17% Cu over a width of 3.5 m.

SMDC flew an airborne INPUT and magnetometer survey over the area in 1983. In 1986, SMDC carried out ground EM, magnetometer and gravity surveys and drilled 12 holes in the general area.

Geology and Mineralization: The area is underlain by northerly trending dacitic volcanics. Mineralization comprises massive pyrite with minor sphalerite and chalcopyrite.

References: SEM Assessment Files 63-L-10-0003, -0018, -0072, -0075, -0092, -0102, -0106, -0182, SMI-0217, -1872

Name: **Young Peninsula, Hanson Lake**

Location: Near the centre of the long peninsula separating Agnew Bay from the main part of Hanson Lake (Location 52, Fig. 37)

History and Development: The Blackie claims were originally staked by C. Young in 1951. During 1953-54, Hudson Bay optioned the property and carried out an EM survey and drilling. An EM conductor near the centre of the peninsula was tested with three holes.

Only one of the holes intersected significant mineralization. Hole 4, on Blackie claim 38, returned 1.4% Zn over a width of 2.3 m. The other two holes encountered disseminated pyrite and pyrrhotite.

In 1957, Parrex Mining Syndicate carried out a ground EM survey and drilled three holes in the area. In 1960, Hardrock Resources Ltd. performed ground EM and magnetometer surveys in the area and in 1967, Western Nuclear Mines carried out ground EM and magnetometer surveys and drilled one hole.

No further work was reported until 1983, when SMDC conducted an airborne INPUT and magnetometer suvey, prospecting, and geological mapping and sampling in the area. In 1986, SMDC drilled 12 holes in the general area.

Geology and Mineralization: The showing is hosted within northerly trending andesitic-dacitic volcanics. Trenching exposed a sheared actinolite-biotite-diopside-garnet (wall rock alteration - author) rock containing stringers of sphalerite and rare galena.

References: Beck (1959), Byers (1957), Coleman et al. (1960), Pyke (1966), SEM Assessment Files 63-L-10-0006, -0027, -0033, -0035, -0087, -0092, -0093, -0095, -0106, SMI-0220

Name: **Zinc Zone**

Location: Immediately northeast of the entrance to McIlvenna Bay, Hanson Lake and approximately one kilometer east of the Hanson Lake mine (Location 53, Fig. 37)

History and Development: In 1976, SMDC (now Cameco) acquired ground in the Hanson Lake area and, the following year, flew an airborne electromagnetic and magnetometer survey.

During 1982-84, the company carried out follow-up ground geophysical surveys and diamond drilling. The showing was discovered in 1984. Drill assays returned up to 30.7% Zn, 0.8% Pb and 5.2 oz/ton Ag (with minor Cu and Au) over a length of 1.5 m.

Geology and Mineralization: The showing is hosted within a sequence of intermediate volcanics, chert, tuffs, argillite and banded magnetite-chert iron formation. Mineralization comprises massive sulphides that include pyrite and sphalerite and minor galena and chalcopyrite.

References: Koziol and Ostapovitch (in prep), SEM Assessment Files 63-L-10-0087, -0095, -0103, -0104, -0106

63-L-11-NE

Name: **Rede**

Location: About 4.5 km north of the northeast end of Limestone Lake and approximately 250 m north of the Hanson Lake Road (Highway 106) (Location 54, Fig. 37)

History and Development: In 1971-73, Hudson Bay carried out an EM survey and drilled 11 holes in the area of the Rede option. Only one hole encountered significant mineralization.

Hole Rede-1 intersected 2.9% Zn, 0.1% Cu and 0.1% Pb over a width of 0.70 m.

No further work was reported until 1982, when SMDC performed an airborne INPUT and magnetometer survey over the area. During 1982-84, Granges Exploration AB carried out localized ground EM surveys and drilled 17 holes in the general area of the showing.

Geology and Mineralization: The area is underlain by sheared granodiorite, close to the major northerly trending Sarginson Lake Fault (part of the Tabbernor Zone). The drill hole intersected hornblende-plagioclase gneiss (sheared granodiorite ?), meta-andesite and quartzose metagreywacke.

Mineralization comprises graphite, pyrite and minor sphalerite and chalcopyrite.

References: SEM Assessment Files 63-L-11-0009, -0015, -0018, -0019, -0020, 0036, -0045, SMI-0238

63-L-14-NW

Name: **Rat 16 (Deschambault Lake)**

Location: West shore of the southwest end of the Northwest Arm, Deschambault Lake (Location 55, Fig. 37)

History and Development: The area of the showing was covered by an airborne radiometric survey flown for Hudson Bay in 1955. In 1965-69, A.L. Parres carried out trenching, an airborne magnetometer and EM survey, a ground EM survey and drilled 24 holes on the Rat claims.

The following describes the best results of the drilling on Rat claim 16:

Ddh	Width (m)	Zn (%)	Cu (%)	Ag (oz/ton)	Au (oz/ton)
1	0.9	2.57	0.08	0.20	0.01
4	0.4	6.87	0.11	0.24	0.01

No further work was reported until 1983, when A.L. Parres conducted ground EM and magnetometer surveys in the area.

Geology and Mineralization: The mineralization is hosted within northeast trending hornblende±biotite gneisses and comprises massive pyrite, pyrrhotite and minor sphalerite.

References: SEM Assessment Files 63-L-14-0002, -0006, -0020, SMI-0276

63-M-01-SE

Name: **Nest (Wildnest Mines)**

Location: About 2.4 km northwest of the central part of Roberts Bay, Wildnest Lake (Location 5, Fig. 13)

History and Development: The Nest, Gat and Lac claim groups were staked by Wildnest Mines, Limited in 1953-54. During this period, the company carried out some trenching and EM surveys. In 1955, Rio Canadian Exploration, Limited optioned the property and performed EM, magnetometer and gravimetric surveys and drilled 13 holes (946 m). Only two of these holes were drilled on the showing. They returned the

following significant intersections:

Ddh	Width (m)	Zn (%)	Cu (%)	Ag (oz/ton)	Au (oz/ton)
4	1.4	2.49	0.31	-	-
5	0.6	-	1.08	0.46	0.01
	0.5	3.24	0.45	0.34	0.01
	3.9	-	0.19	0.25	0.01

In 1959, B.P. Poulin carried out some trenching on the Nest claims, most of which had been allowed to lapse. That year, Hudson Bay staked in the area, including parts of the former Nest claims, and carried out an EM survey in 1966. All the claims were allowed to lapse in 1968. In 1971, A.L. Jackson staked in the vicinity of the property. There is no record of any work. The claims subsequently lapsed in 1974.

In 1985, Homestake Mineral Development Company acquired property in the immediate vicinity of the showing and during 1985-87 conducted an airborne VLF-EM and magnetometer survey, geological mapping, lithogeochemical and humus sampling and drilling.

Geology and Mineralization: The area is underlain by northeasterly trending variably garnetiferous, biotitic and hornblendic "Kisseynew-type" gneisses (Amisk Group ? - author).

The showing comprises a 600 m long and 7 m wide conformable gossan zone. Mineralization is formed by pyrite and pyrrhotite with minor sphalerite and chalcopyrite. The sulphides form disseminations and small veinlets.

Abundant garnet accompanies the mineralization and may represent wall rock alteration (author).

References: Beck (1959), Cheesman (1956), SEM Assessment Files 63-M-01-0002, -0010, -0018, -0027, 0028, -0030, SMI-0319

63-M-04-SE

Name: **Brownell Lake**

Location: About 400 m north of the northeast end of Brownell Lake and extending approximately 2.5 km to the east (Location 18, Fig. 12)

History and Development: The property containing the showing was staked by Canadian Nickel Company Limited in 1958 to cover a 2000 m long airborne EM anomaly. During 1959-63, the company conducted ground EM and magnetometer surveys and drilled at least 22 widely spaced holes (totalling ±3,050 m) along the strike of the mineralized zone. Most of the holes intersected varying amounts of sphalerite and chalcopyrite over a length of 2.5 km.

All of the holes were assayed for Cu and Ni. Only 11 holes were assayed for Zn, despite the reported presence of up to 10 per cent sphalerite in some of the holes.

The highlights of the drill results are as follows (an asterisk denotes that the hole was not assayed for Zn):

Ddh	Width (m)	Zn (%)	Cu (%)	Ag (oz/ton)	Au (oz/ton)
13672	2.8	1.94	0.64	-	-
14806	0.2	6.47	0.26	-	-
	1.4	1.70	0.17	-	-
	5.9	2.99	0.61	-	-
14807	2.0	0.87	0.73	-	-
14808	3.1	Nil	0.21	-	-
14809	3.0	Nil	0.74	-	-
14810	1.5	3.16	0.08	-	-
14811	3.7	1.37	1.01	-	-
14813	0.4	5.90	0.28	-	-
	3.2	1.90	0.32	-	-
14814	0.6	4.16	0.15	-	-
	1.3	1.49	0.20	-	-
24121	0.3	*	4.01	-	-
	2.0	*	0.65	-	-
24122	4.4	*	0.34	-	-
24123	2.4	*	0.69	-	-
24124	1.7	*	0.63	-	-
24125	1.2	*	0.50	-	-
24126	1.1	*	1.30	-	-
24127	1.5	*	0.40	-	-
24129	2.0	*	0.47	-	-
24130	0.3	*	3.00	-	-
24161	1.7	*	0.87	-	-

The work outlined possible geological reserves of 1.38 million tons grading 1.75% Zn and 0.56% Cu (M.W. Pyke, personal communication, 1981).

In the area of the showing, Hardrock Resources Ltd. carried out ground magnetometer and EM surveys in 1961-63 and Great Plains Development Co. of Canada Ltd. performed geological mapping and sampling in 1965-66.

The property covering the showing lapsed in 1969. W.B. Dunlop restaked the property that year and later the same year La Ronge Mining Ltd. performed a ground magnetometer and EM survey over the showing. Also in 1969, A.L. Parres carried out an airborne EM survey over the property.

International Obaska Mines Ltd. optioned the property in 197? and drilled six holes (1,039 m) to test the eastern portion of the conductive zone.

The drilling returned the following results:

Ddh	Width (m)	Zn (%)	Cu (%)	Ag (oz/ton)	Au (oz/ton)
1	0.9	0.95	0.75	0.24	0.02
2	0.4	1.23	0.92	0.66	0.02
3	2.5	1.24	0.36	0.15	0.01
4	4.6	0.60	0.39	Tr	0.01
6	3.4	2.28	0.48	0.19	0.04

In 1981-82, a Comaplex Resources/Taiga Consultants/Dunlop joint venture conducted prospecting, geological mapping, soil sampling and a ground EM survey in the immediate area of the showing. Carina Mineral Resources/ Waddy Lake Resources carried out geological mapping, prospecting, trenching and sampling (rock, soil and humus) in an area approximately 1.5 km west of the showing in 1988-89.

Geology and Mineralization: The area of the showing is underlain by an easterly trending, north-dipping belt of metavolcanics (intermediate-felsic flows and tuffs) and intercalated metasediments that are intruded by composite plutons of gabbro-granodiorite.

Mineralization comprises mainly pyrite and pyrrhotite with some sphalerite and chalcopyrite. Sulphides occur as disseminations and 'stringer' and massive zones. Garnet, sericite, chlorite and magnetite are variably present as a footwall alteration feature.

Remarks: Canico drill holes were widely spaced along the target conductor, i.e. in many portions of the mineralized zone the drill holes were 200 to 300 m apart.

Despite the reported presence of sphalerite within many of the Canico drill hole logs, only about one-half of the drill intersections were assayed for zinc. The geological setting was not recognized by the earlier workers as volcanogenic. Hence, no significance was attached to the possible presence of stringer zones, footwall alteration, mineral zoning, etc.

References: Scott (1981), SEM Assessment Files 63-M-0003, 63-M-03-0016, 63-M-04-0001, -0007, -0008, -0009, -0016, -0022, -0025, SMI-0339, -1728, -1729, -1730, -1731, -1732

63-M-05-NE

Name: **Sun (Norum Lake)**

Location: Immediately north of Norum Lake, a small lake approximately 8 km north of Archibald Island, Trade Lake (Location 19, Fig. 12)

History and Development: The showing was originally staked by R.J. Schaller prior to 1955. The property was allowed to lapse and restaked that year as the Sun claims by C.R. Crosby, who conducted limited geological mapping. New Goldvue Mines Limted optioned the property in 1956 and in 1956-57 carried out an EM survey, geological mapping, trenching and sampling. The Sun claims were transferred to A. Talbot in 1959.

In 1964, the Sun (and adjoining Ore) claims were acquired by the Roberts Mining Company and that year optioned to Noranda Mines. In 1964-65, this company carried out a ground EM survey and drilled 12 holes (915 m). The drilling intersected narrow zones of mineralization; the best intersection returned 5.5% Cu over a width of 0.09 m. The claims all lapsed in 1969. That year, TVI Mining Ltd. staked the area and performed mapping and sampling and an EM survey.

Rio Alto Exploration Ltd. acquired the property (CBS 2912) in 1971 and conducted core and trench sampling. The best trench samples returned:

Trench	Width (m)	Zn (%)	Cu (%)
6a	1.5	1.73	0.05
7	1.2	0.47	0.12
10	1.2	2.98	0.57

The property lapsed in 1973. No further work was reported until 1988, when Cominco performed ground UTEM and magnetometer surveys over an area that included the showing.

Geology and Mineralization: The showing is

hosted within an easterly trending belt of volcanics close to the contact with a northerly lying diorite-gabbro intrusive body. A conspicuous gossan zone lies within schistose felsic volcanics.

Mineralization comprises pyrite, pyrrhotite, chalcopyrite, sphalerite and bornite as disseminations, massive pods and fracture fillings associated with easterly trending shear zones.

References: Beck (1959), SEM Assessment Files 63-M-05-0001, -0002, -0012, -0021, -0027, -0029, 63-M-06-0003, SMI-0347

64-D-03-NE

Name: **Linda (McCullum Lake)**

Location: Near the east shore of the small lake, about 1.6 km east of the Reindeer River and 4.8 km south of Fafard Lake (Location 25, Fig. 8)

History and Development: The Linda claim group was staked by W. Saiko prior to 1952. That year, trenching and a magnetometer survey were conducted on the claims. In 1953, Hudson Bay drilled five holes (183 m) on the claims. Four of these were drilled on the showing and the best intersections returned the following:

Ddh	Width (m)	Zn (%)	Cu (%)	Ag (oz/ton)	Au (oz/ton)
3	0.5	3.5	Tr	0.10	Tr
	6.0	0.9	Tr	0.12	Tr
inc.	1.4	1.2	Tr	0.22	Tr
4	0.6	1.6	Nil	Nil	Tr
4a	1.2	1.6	0.6	0.32	Tr

The claims were subsequently allowed to lapse and were restaked by O. Hanson in 1958. J. Albrecht inspected the showing in 1967. G. Thompson staked the area in 1969. The property lapsed in 1971. No further work has been reported on the showing to date.

Geology and Mineralization: The area is underlain by "Kisseynew-type" biotitic and hornblendic gneisses that are commonly intercalated with *'lit-par-lit'* pegmatites. Mineralization comprises disseminated pyrrhotite and lesser pyrite, with minor sphalerite and chalcopyrite.

References: Beck (1959), SEM Assessment Files 64-D-0001, 64-D-01-0001, 64-D-08-0005, SMI-0421

64-D-04-SW

Name: **Wep (Main Lake)**

Location: About 400 m northeast of Main Lake and approximately 60 m northwest of the creek (Location 20, Fig. 12)

History and Development: K.E. Wierzycki staked the Wep claims over the showing in 1957. That year, Westore Mines, Limited and Paramount Petroleum and Minerals, Limited optioned the property and carried out trenching, a magnetometer survey and drilled three holes (366 m). Only one hole intersected significant mineralization.

Hole 1 returned 5.3% Zn, trace Cu, 0.2% Pb, 0.10 oz/ton Ag and trace Au over a width of 0.70 m.

The option was subsequently abandoned. In 1964, the property was transferred to Bison Petroleum and Minerals Ltd. who carried out an EM survey and drilled four (?) holes. The same year, Consolidated Mining and Smelting performed an EM survey and soil sampling in the area.

No further work was reported until 1981-82, when the area was included in a regional lake sediment survey and a reconnaissance mapping, prospecting and sampling program by SMDC. In 1983, Renwick Explorations Ltd. performed VLF-EM and magnetometer surveys over the showing. In 1989, R. Myke carried out ground VLF-EM and magnetometer surveys and rock sampling in the area.

Geology and Mineralization: The area is underlain by northeast trending "Kisseynew-type" sillimanite-bearing biotite and garnet-biotite gneisses and migmatites with intercalated *'lit-par-lit'* pegmatite sheets.

Mineralization is hosted within a 4 to 5 m wide, conformable, greenish coloured quartz-plagioclase-muscovite-(chlorite)-(epidote) pegmatite body. Sulphide minerals include disseminated pyrite, pyrrhotite, chalcopyrite and sphalerite and minor galena. Gahnite (zinc spinel) is locally present within the pegmatite.

The garnet-biotite gneisses also contain 'actinolitic amphibole' (alteration - author) and

graphite in places.

References: Beck (1959), Johnston (1972), Kirkland (1959), SEM Assessment Files 64-D-0001, -0004, 64-D-04-0020, -0042, -0077, -0120, SMI-0447

64-D-05-NW

Name: **Elephant Lake**

Location: About 2.4 km NNE of Elephant Lake (Location 21, Fig. 12)

History and Development: E.F. Partridge staked the area of the showing in 1948 and conducted prospecting over a large area during 1948-58. Extensive gossan zones were noted at this time. In 1959, Augustus Exploration carried out an airborne EM and magnetometer survey and follow up prospecting over the area. In 1966, Kerr Addison Mines Limited conducted EM surveys and prospecting in the Elephant-Copp Lakes area and the Don Fisher Syndicate investigated conductors in the area and carried out some trenching. In 1968, Sherritt Gordon Mines Ltd. carried out EM surveys and drilled 14 holes (995 m) on two conductor zones north of Elephant Lake.

Hole 6 (on grid B) was the only hole to intersect significant mineralization. It returned 0.66% Zn, 0.03% Cu and 0.01% Ni over a width of 11 m.

No further work has been reported on the showing.

Geology and Mineralization: The area is underlain by east to northeast trending turbidite-derived metagreywackes (volcanogenic wackes) intercalated with subordinate, laterally extensive pyrite-pyrrhotite-graphite units.

Mineralization comprises disseminated to semi-massive pyrite, pyrrhotite, chalcopyrite and sphalerite within 'fine grained quartz-hornblende-biotite gneiss'.

References: Johnston (1973), SEM Assessment Files 64-D-0001, 64-D-04-0001, -0002, -0003, -0004, -0005, 64-D-05-0005, -0025, -0027, -0040, -0043, -0050, SMI-0470a, -0470b

64-D-05-NE

Name: **May Lake N**

Location: Approximately 2.4 km north of May Lake (Location 22, Fig. 12)

History and Development: Sulphide zones were first discovered in the area in 1929 by the Canadian Department of Mines. In 1957-59, Studer Mines conducted trenching and pitting in the area. During 1959-63, Augustus Exploration Ltd. carried out an airborne EM and magnetometer survey, ground geophysical surveys, geological mapping and prospecting in the area. A further airborne EM and magnetometer survey was flown in the area for Magenta Exploration Ltd. in 1969.

During 1967-69, Sherritt Gordon Mines Ltd. performed airborne and ground EM surveys and drilled 31 holes (± 2,400 m) in the area. The drilling failed to intersect significant mineralization and the property was subsequently abandoned.

During 1973-75, Granges Exploration AB carried out airborne INPUT and magnetometer surveys, ground EM surveys, geological mapping and drilled 23 holes (May 1 to 23; 1,028 m).

In 1977-78, SMDC/Granges Exploration AB conducted geological mapping, ground magnetometer and EM surveys and drilled 16 holes (May 24 to 39; 828 m) in the area.

The drilling defined a four kilometer long zinc-rich exhalite zone. Some of the more interesting results include the following:

Ddh	Width (m)	Zn (%)	Cu (%)
68-15	0.3	2.52	
M-15	7.2	0.34	0.12
M-24	3.4	0.35	0.07
M-30	7.3	0.28	
M-32	8.8	0.26	

In 1982-83, SMDC performed prospecting and sampling (overburden, soil, rock and old core) in the vicinity. In 1986, Channel Resources Ltd. performed ground magnetometer and EM surveys in the area.

Geology and Mineralization: The area is underlain by two cycles of felsic volcanism - sedimentation. The showing is formed by a zinc-rich exhalite that occurs within the upper cycle at the contact of rhyolite with structurally overlying fine grained volcanogenic sediments.

The mineralization is hosted within an ESE trending green, variably graphitic cherty horizon on the northern (overturned ?) limb of a major

easterly trending F2 synform. The exhalite varies from 0.6 to 20 m thick.

Mineralization comprises disseminated to semi-massive pyrrhotite and pyrite, with minor sphalerite and chalcopyrite. Anthophyllite and cordierite are commonly associated with the sulphides.

References: Johnston (1970), SEM Assessment Files 64-D-0001, 64-D-0006, 64-D-04-0001, -0002, 64-D-05-0003, -0026, -0028, -0055, -0056, -0066, -0067, -0068, -0069, -0071, -0072, -0073, -0086, -0093, 64-D-08-0026, -0041, SMI-0467b

64-E-08-SE

Name: **Brown (Paskwachi Bay)**

Location: Near the west shore of Paskwachi Bay, Reindeer Lake, immediately west of the Saskatchewan-Manitoba border (Location 29, Fig. 8)

History and Development: J. Highway, E.L. Brown and J. Drybrough staked the Brown claims over the showing in 1927. The Reindeer Lake Syndicate acquired the property the following year and carried out some trenching and drilled eight holes. Only six of the holes reached bedrock and intersected the mineralized zone over widths of 0.3 to 7.0 m. Highest values were obtained for zinc; lesser amounts of copper and minor lead, silver and gold were also reported. The claims were subsequently allowed to lapse.

In 1964 the Bay claims covered the showing. No further work was reported until 1965, when Hudson Bay performed a ground EM survey and drilled six holes. Only four holes (371 m) were logged. Interesting mineralization was intersected in two holes. The following summarizes the results of the drilling:

Ddh	Width (m)	Zn (%)	Cu (%)	Pb (%)
10	0.18	5.1	-	0.2
11	0.98	2.9	-	0.3

The Bay claims finally lapsed in 1973.

No further work has been reported on the showing to date.

Geology and Mineralization: The area is underlain by easterly trending migmatitic gneisses of the Rottenstone Domain (?). The latter comprise predominant psammitic-pelitic palaeosome with trondjhemite-tonalite neosome. Narrow lenses of amphibolite occur within the gneisses.

Mineralization is hosted within a 1.5 to 3.0 m wide conformable amphibolite unit and immediately adjacent gneisses. It is especially conspicuous near, and within, small bodies of greenish pegmatite that invade both the amphibolite and the gneisses.

The mineralized zone can be traced 240 m along strike. It comprises disseminated to semi-massive pyrite, pyrrhotite, sphalerite, chalcopyrite and galena. Minor graphite and garnet accompany the mineralization.

References: Beck (1959), SEM Assessment File 64-E-08-0001, SMI-0568

64-E-12-SW

Name: **Hills Lake (E-18A)**

Location: Southwest end of Hills Lake, about 300 m west of Highway 105 (Reindeer Lake-Wollaston Lake highway) (Location 30, Fig. 8; Fig. 71)

History and Development: E.F. Partridge discovered mineralized boulders southwest of Hills Lake during a reconnaissance prospecting program in 1963. In 1964, E.F. Partridge and Falconbridge Nickel Mines Ltd. performed prospecting, geological mapping, soil geochemistry, trenching and drilled two short holes at the southwest end of Hills Lake. Trenching failed to locate mineralization in place. Only one hole encountered significant mineralization.

Hole EP-2 intersected 2.96% Zn over a width of 3.6 m and 0.44% Zn over a width of 2.9 m.

That year Falconbridge acquired a permit over the area. In 1965-67, Falconbridge conducted reconnaissance geological mapping, an IP survey and drilled eight further holes (1,237 m) in the vicinity of the showing. The drilling failed to intersect any significant mineralization and the permit was dropped in 1967.

In 1968 Fort Reliance Minerals Ltd. and Houston Oils Ltd. acquired a permit over the area. The following year, Great Plains

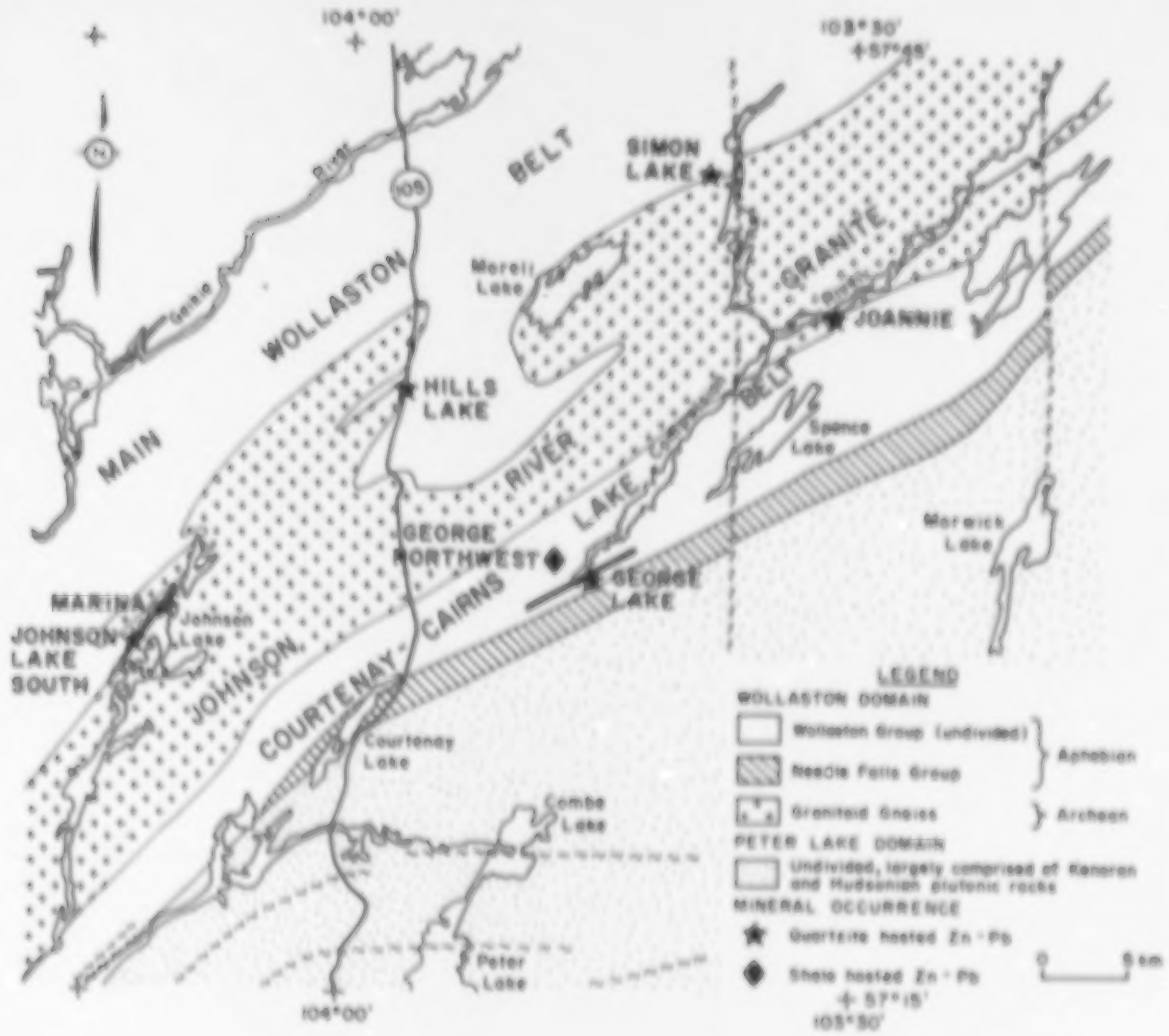


Figure 71. Geology and mineral occurrences in the Morell Lake area (geology modified after Macdonald and Thomas, 1983 and Ray, 1983b).

Development Company of Canada Ltd. optioned the property and carried out an airborne radiometric survey and ground checking; no work was done on the showing.

In 1970, Fort Reliance Minerals-Houston Oils Ltd. performed helicopter-borne EM and magnetometer surveys over the permit. In 1971, the joint venture staked a claim block over the showing and carried out ground geophysical surveys, a small soil geochemical survey.

Two holes (366 m) were drilled in the vicinity of the occurrence but failed to intersect any significant mineralization.

Nufort Resources Inc. (formerly Fort Reliance Minerals) conducted limited ground magnetometer and soil geochemical surveys over the showing in 1976 and ground VLF-EM and total field and vertical gradient magnetometer surveys in 1987.

Geology and Mineralization: The area is predominantly underlain by variably graphitic, garnetiferous and amphibolitic pelitic gneisses of

the basal part of the Wollaston Group. The latter immediately overlie granitoid rocks (part of the Archean Johnson River Granite inlier ?) and occupy a northeasterly plunging antiform.

Mineralized boulders comprise grey to white quartzite containing disseminations and fine fracture fillings of pyrite, pyrrhotite, sphalerite, galena and magnetite.

Mineralization encountered in hole EP-2 is hosted within "pink feldspar-biotite-hornblende rock", also described as a "fine grained feldspathic quartzite". Sulphides, predominantly sphalerite, form up to 20 per cent of the mineralized interval.

References: Coombe (1977), SEM Assessment Files 64-E-05-0006, -0012, 64-E-11-0004, 64-E-12-0020, -0022, -0034, -0039, -0042, -0047, SMI-0604

73-P-10-NW

Name: **Mac**

Location: About 1,250 m northeast of Borys Lake, a small lake about 1.5 km north of Nipew (Dead) Lake and approximately 75 km NNE of La Ronge (Location 31, Fig. 8)

History and Development: In 1956, prospector W. McLeod discovered a large mineralized glacial boulder in the southwest part of Dead Lake, about 6.4 km south-southwest of Borys Lake. A grab sample from the boulder assayed 13.5% Zn, 13.4% Pb, 4.42 oz/ton Ag and 0.02 oz/ton Au.

Two years later, McLeod discovered an outcrop of similarly mineralized rock immediately northwest of Borys Lake. In the same year, B.R. Richards staked the Will claims over the showing. The Mac claims were staked to cover the northeastern extension.

During 1958-59, B.R. Richards and Embassy Mines Ltd. carried out a magnetometer survey over the mineralized zone and drilled 15 holes (totalling 1,257 m) on the Mac claims. The drilling tested the mineralized shear zone over a length of 1,000 m. The following summarizes the results of the drilling:

Drill	Width (m)	Zn (%)	Pb (%)	Cu (%)	Ag (oz/ton)	Au (oz/ton)
1	0.6	7.3	-	Tr	1.20	Tr
	1.7	2.2	0.4	Tr	0.65	Tr
2	0.6	2.1	0.1	0.12	Tr	0.03
3	0.6	2.6	Nil	-	Tr	Tr
5	1.0	10.5	2.9	-	0.34	Tr
6	8.1	7.0	1.1	Tr	0.56	Tr
7	0.3	20.6	Nil	Tr	0.20	Tr
10	0.3	4.9	0.8	-	2.17	0.15
	0.6	12.0	3.4	Tr	2.95	0.01

In 1967, Noranda Exploration Co. Ltd. performed ground EM surveys and drilled 25 short holes on the Kie claims to test EM conductors in the general vicinity of Borys Lake. No significant mineralization was encountered.

The Mac claims were allowed to lapse and were restaked as part of CBS 1863 in 1971 by B.R. Richards. That year Husky Oil Operations Ltd. optioned CBS 1863 and the Will claims.

In 1971-72, Husky conducted geological mapping, trenching and sampling, geochemical, ground magnetometer and EM surveys, and drilled 16 holes (totalling 1,624 m). Most of this work was done on the Will claims (especially the Main Zone and its southwestern extension).

In 1982, Bonn Energy Corporation optioned CBS 1863 (now ML 5324), that included the former Mac and Can claims, and conducted geological mapping, prospecting and magnetometer and EM surveys over the southwestern portion of the property, i.e. southwest of the 'Main Zone'. In 1987, Claude Resources Inc. conducted ground magnetometer and VLF-EM surveys over the area including the Borys Lake deposit.

Geology and Mineralization: The Mac showing is hosted within a northeasterly trending shear zone within variably sheared and garnetiferous, intercalated hornblendic and calc-silicate gneisses that lie on the northwestern limb of a major antiform. The core of the antiform, southeast of the showing, is occupied by predominant hornblendic gneisses. Biotitic gneisses predominate to the northwest of the showing.

The mineralized shear zone has been traced over a length of about 4.5 to 5.0 km. It includes the Mac, Will Main Zone, Will A, Will B and Can occurrences (Fig. 69).

Mineralization is formed by pyrrhotite and sphalerite with minor galena, pyrite and chalcopyrite. The sulphides occur as fine disseminations, isolated blebs and rare veinlets.

Remarks: See Will deposit (Borys Lake, Main Zone), 73-P-10-NW for further remarks.

References: Beck (1959), Bienia (1975), Padgham (1960), SEM Assessment Files 73-P-10-0003, -0020, -0040, -0055, -0069, -0070, -0071, -0103, 73-P-11-0001, -0003, -0007, -0012, -0020, -0021, -0022, -0032, -0033, -0038, -0039, SMI-0848

73-P-11-NE

Name: Can

Location: About 400 m east of the northeastern bay of Kitchemonia Lake and 2.3 km southwest of Borys Lake (Location 32, Fig. 8)

History and Development: In 1956, prospector W. McLeod discovered a large mineralized glacial boulder in the southwest part of Dead Lake, about 6.4 km south-southwest of Borys Lake. A grab sample from the boulder assayed 13.5% Zn, 13.4% Pb, 4.42 oz/ton Ag and 0.02 oz/ton Au.

Two years later, McLeod discovered an outcrop of similarly mineralized rock immediately northwest of Borys Lake. In the same year, B.R. Richards staked the Will claims over the showing (the Borys Lake deposit) and conducted geological mapping, magnetometer and vertical loop EM geophysical surveys and drilled one 'X-ray' hole (36 m).

In 1963, McIntyre Porcupine Mines Ltd. optioned the Will claims and conducted trenching and sampling and EM surveys over the property as well as the Can 1 to 20 claims, immediately southwest of the Will claims. The latter claims covered the southwestern strike extension of the mineralized zone.

Mineralization was proven to extend over a length of more than 4.5 km. Six holes (totalling 472 m) were drilled along the mineralized structure.

Three of the holes (C-1 to C-3; total 212 m) were drilled on the Can claims about 2.4 km southwest of Borys Lake and encountered mineralization over a strike length of 200 m. The best mineralization was reported in holes C-1 and C-3 which returned 1.39% Zn over 3.0 m and 2.04% Zn over 1.5 m respectively.

No further work was reported and the Can claims lapsed in 1967. That year, Noranda Exploration Co. Ltd. performed ground EM surveys and drilled 25 short holes on the Kie claims, which partly coincided with the Can claims, to test EM conductors in the general area of the showing. No significant mineralization was encountered.

The former Can claims were restaked as part of CBS 1863 in 1971 by B.R. Richards. That year Husky Oil Operations Ltd. optioned CBS 1863 and the Will claims.

In 1971-72, Husky conducted geological mapping, trenching and sampling, geochemical, ground magnetometer and EM surveys, and drilled 16 holes (totalling 1,624 m). Most of this work was done along the mineralized structure to the northeast of the Can showing.

In 1982, Bonn Energy Corporation optioned CBS 1863 (now ML 5324), that included the former Can claims, and conducted geological mapping, prospecting and magnetometer and EM surveys over the southwestern portion of the property. In 1987, Claude Resources Inc. conducted ground magnetometer and VLF-EM surveys over the area.

Geology and Mineralization: The showing occurs within a northeast trending shear zone within variably garnetiferous, intercalated hornblendic and calc-silicate gneisses that lie on the northwestern limb of a major antiform. The core of the antiform, southeast of the showing, is occupied by predominant hornblendic gneisses. Biotitic gneisses predominate to the northwest of the showing.

The mineralized shear zone has been traced over a length of about 4.5 to 5.0 km. It includes the Mac, Will Main Zone, Will A, Will B and Can occurrences (Fig. 69).

Mineralization is formed by pyrrhotite and sphalerite with minor galena, pyrite and chalcopyrite. The sulphides occur as fine disseminations, isolated blebs and rare veinlets.

Remarks: See Will deposit (Borys Lake, Main Zone), 73-P-10-NW for further remarks.

References: Beck (1959), Bienia (1975), Morris (1960), Padgham (1960), SEM Assessment

Files 73-P-10-0003, -0020, -0055, -0069, -0070, -0071, -0103, 73-P-11-0001, -0003, -0007, -0012, -0020, -0021, -0022, -0032, -0033, -0038, -0039, SMI-0858

Name: **Will A (12, 17 claims)**

Location: Approximately 500 m southwest of Borys Lake (Location 33, Fig. 8)

History and Development: In 1956, prospector W. McLeod discovered a large mineralized glacial boulder in the southwest part of Dead Lake, about 6.4 km south-southwest of Borys Lake. A grab sample from the boulder assayed 13.5% Zn, 13.4% Pb, 4.42 oz/ton Ag and 0.02 oz/ton Au.

Two years later, McLeod discovered an outcrop of similarly mineralized rock immediately northwest of Borys Lake. In the same year, B.R. Richards staked the Will 1 to 18 claims over the showing (the Borys Lake deposit) and conducted geological mapping, magnetometer and vertical loop EM geophysical surveys and drilled one 'X-ray' hole (36 m).

In 1963, McIntyre Porcupine Mines Ltd. optioned the Will claims and conducted trenching and sampling and EM surveys over the property (as well as the Can 1 to 20 claims, immediately southwest of the Will claims). Mineralization was proven to extend over a length of more than 4.5 km.

Trenching on the structure on the Will 12 and 17 claims (trenches 8 and 9), about 500 m southwest of Borys Lake, returned the following results:

Trench	Width (m)	Zn (%)	Cu (%)	Pb (%)	Ag (oz/ton)
8	2.5	1.16	-	0.93	0.89
9	2.0	0.69	-	0.31	0.80

In 1971, Husky Oil Operations Ltd. optioned the Will claims and, during 1971-72, conducted geological mapping, trenching and sampling, geochemical, ground magnetometer and EM surveys, and drilled 16 holes (totalling 1,624 m).

Twelve of these holes (1-72 to 11-72 and 16-72) were drilled on the 'Main Zone', immediately north and northwest of Borys Lake. The other four holes were drilled along the immediate southwestern extension of the 'Main Zone'. Two of the latter holes (12-72 and 13-72) were drilled in the immediate vicinity of the earlier trenching referred to above. A further hole (14-72) was drilled about 350 m futher to the southwest. The following summarizes the results of this drilling:

Drill	Width (m)	Zn (%)	Cu (%)	Pb (%)	Ag (oz/ton)
12-72	1.5	0.87	-	0.01	0.08
	0.6	13.01	-	2.44	2.14
13-72	0.3	4.01	-	0.78	0.56
14-72	0.2	0.05	6.43	-	-

In 1987, Claude Resources Inc. conducted ground magnetometer and VLF-EM surveys over the area.

Geology and Mineralization: The showing occurs within a northeast trending shear zone within variably sheared and garnetiferous, intercalated hornblendic and calc-silicate gneisses that lie on the northwestern limb of a major antiform. The core of the antiform, southeast of the showing, is occupied by predominant hornblendic gneisses. Biotitic gneisses predominate to the northwest of the showing.

The mineralized shear zone has been traced over a length of about 4.5 to 5.0 km. It includes the Mac, Will Main Zone, Will A, Will B and Can occurrences (Fig. 69).

Mineralization is formed by pyrrhotite and sphalerite with minor galena, pyrite and chalcopyrite. The sulphides occur as fine disseminations, isolated blebs and rare veinlets.

Remarks: See Will deposit (Borys Lake, Main Zone), 73-P10-NW for further remarks.

References: Beck (1959), Bienia (1975), Morris (1960), Padgham (1960), SEM Assessment Files 73-P-10-0003, -0020, -0055, -0069, -0070, -0071, -0103, 73-P-11-0001, -0003, -0007, -0012, -0020, -0021, -0022, -0032, -0033, -0038, -0039, SMI-0857

Name: **Will B (8, 13 claims)**

Location: Immediately northwest of the southwest end of Borys Lake (Location 34, Fig. 8)

History and Development: In 1956, prospector W. McLeod discovered a large mineralized glacial boulder in the southwest part of Dead Lake, about 6.4 km south-southwest of Borys Lake. A grab sample from the boulder assayed

13.5% Zn, 13.4% Pb, 4.42 oz/ton Ag and 0.02 oz/ton Au.

Two years later, McLeod discovered an outcrop of similarly mineralized rock immediately northwest of Borys Lake. In the same year, B.R. Richards staked the Will 1 to 18 claims over the showing (the Borys Lake deposit) and conducted geological mapping, magnetometer and vertical loop EM geophysical surveys and drilled one 'X-ray' hole (36 m).

In 1963, McIntyre Porcupine Mines Ltd. optioned the Will claims and conducted trenching and sampling and EM surveys over the property (as well as the Can 1 to 20 claims, immediately southwest of the Will claims). Mineralization was proven to extend over a length of more than 4.5 km.

Trenching on the structure on the Will 8 and 13 claims (Trenches 1 and 7), near the southwest end of Borys Lake, returned the following results:

Trench	Width (m)	Zn (%)	Cu (%)	Pb (%)	Ag (oz/ton)
1	4.6	0.48	-	0.37	0.64
7	5.8	0.48	-	0.20	0.27

In 1971, Husky Oil Operations Ltd. optioned the Will claims and, during 1971-72, conducted geological mapping, trenching and sampling, geochemical, ground magnetometer and EM surveys, and drilled 16 holes (totalling 1,624 m).

Twelve of these holes (1-72 to 11-72 and 16-72) were drilled on the 'Main Zone', immediately to the northeast. The other four holes were drilled along the immediate southwestern extension of the 'Main Zone'. One of the latter holes (15-72) was drilled immediately northeast of Trench 1, referred to above.

The following summarizes the results of this drilling:

Ddh	Width (m)	Zn (%)	Cu (%)	Pb (%)	Ag (oz/ton)
15-72	3.0	0.91	-	0.21	0.60

In 1987, Claude Resouces Inc. conducted ground magnetometer and VLF-EM surveys over the area.

Geology and Mineralization: The showing occurs within a northeast trending shear zone within variably sheared and garnetiferous, intercalated hornblendic and calc-silicate gneisses that lie on the northwestern limb of a major antiform. The core of the antiform, southeast of the showing, is occupied by predominant hornblendic gneisses. Biotitic gneisses predominate to the northwest of the showing.

The mineralized shear zone has been traced over a length of about 4.5 to 5.0 km. It includes the Mac, Will Main Zone, Will A, Will B and Can occurrences (Fig. 69).

Mineralization is formed by pyrrhotite and sphalerite with minor galena, pyrite and chalcopyrite. The sulphides occur as fine disseminations, isolated blebs and rare veinlets.

Remarks: See Will deposit (Borys Lake, Main Zone), 73-P-10-NW for further remarks.

References: Beck (1959), Bienia (1975), Morris (1960), Padgham (1960), SEM Assessment Files 73-P-10-0003, -0020, -0055, -0069, -0070, -0071, -0103, 73-P-11-0001, -0003, -0007, -0012, -0020, -0021, -0022, -0032, -0033, -0038, -0039, SMI-0857

74-A-04-NE

Name: **Fable Lake**

Location: Northeast of Fable Lake, a small lake about 750 m west of the Foster River and approximately 7 km southwest of Hewetson Lake (Location 35, Fig. 8)

History and Development: The first recorded exploration in the Foster River area was in 1955, when Ameranium Mines Ltd. carried out geological and radiometric surveys over an area east of Place Lake. In 1968 Northwood Mines Ltd. acquired three large permits covering the area from the Churchill River to Middle Foster Lake. The following year, Trans Canada Resources Ltd. and Canadian Delhi Oil Ltd. (later Can Del Oil Ltd.) acquired joint ownership of the permits and flew airborne INPUT, magnetometer and radiometric surveys.

During 1969-70, TCR-CanDel performed follow-up work, including prospecting, mapping, geophysical surveying (EM, SP and magnetometer) and some trenching. Nothing of significance was found and the permits were allowed to lapse in 1971.

In 1971, Husky Oil Operations Ltd. entered into an agreement with CanDel to search for base metals. That year, E.F. Partridge, prospecting on behalf of the Husky-CanDel consortium, discovered significant zinc mineralization at Sito Lake (the Sito West occurrence). Subsequently, that same year, several other zinc-lead (and copper) showings were found over a large area, from Robyn Lake (in the north) to Fable Lake (in the south) (Fig. 72).

At Fable Lake a train of sphalerite- and galena-bearing boulders was found on the west side of the Foster River that extended about 1,500 m to the northeast of the lake. Mineralization was found in place at the northeast end of Fable Lake.

During 1971-72, the joint venture carried out prospecting, trenching and sampling, magnetometer and EM surveys, seismic and topographic surveys and drilled nine holes (totalling 1,838 m) on the Fable Lake grid. Only four of the holes encountered significant mineralization. The following summarizes the results of the drilling:

Ddh	Width (m)	Zn (%)	Pb (%)	Cu (%)	Ag (oz/ton)
4-72	2.1	0.86	0.29	-	-
	3.0	3.93	1.15	-	-
	3.0	0.50	0.26	-	-
	3.0	1.28	0.24	-	-
7-72	1.5	1.17	0.02	-	0.02
8-72	2.9	0.53	Tr	-	Tr
9-72	3.0	1.59	5.38	-	1.15
	10.7	1.36	0.03	-	-

In 1972, the Saskatchewan Research Council carried out geochemical studies over the boulder train (Haughton, 1973). In 1974 Husky performed further mapping, a soil geochemical survey and emplaced 14 trenches. This work also extended the mineralized boulder train to the southwest of Fable Lake. Trenching to the northeast of Fable Lake returned the following significant results:

Trench	Width (m)	Zn (%)	Pb (%)	Cu (%)	Ag (oz/ton)
1	3.0	1.05	1.13	-	-
3	1.5	1.25	0.70	0.01	0.38
4	1.5	1.40	0.02	-	0.42
5	7.6	0.47	0.08	-	-

No further work has been reported.

Geology and Mineralization: Mineralization at Fable Lake is hosted within Wollaston Group quartzites that comprise a unit about 15 to 50 m thick within a thick, predominantly meta-arkosic succession. The entire psammitic sequence occupies the core of a major, northeasterly trending refolded canoe-shaped trough, known as the Fable Lake synform.

In the trenches at Fable Lake, fine to medium grained, medium to dark grey quartzites, interlayered with light grey feldspathic and impure sillimanite-garnet-biotite quartzites, contain up to 25 per cent sulphides. Quartz pebble metaconglomerates and pebbly quartzites form frequent thin intercalations.

Mineralization comprises sphalerite, galena, pyrrhotite and pyrite. The sulphides fill interstices between silicate grains and occur as grain coatings and rare fracture fillings. In hole 9-72, mineralization is anomalous in that it is hosted within graphitic biotite gneiss. The latter contains up to 20 per cent sphalerite, 30 per cent galena and 10 per cent pyrite over a width of 3.0 m.

References: Fuh (1976a), Haughton (1973), Potter (1977, 1978, 1980), SEM Assessment Files 74-A-01-0012, -0016, 74-A-04-0002, -0004, -0005, -0008, -0009, -0010, -0012, -0014, -0015, -0016, -0017, SMI-0933

74-A-05-SE

Name: **Sito East**

Location: About 200 m east of Place Lake, a small lake approximately 1 km southeast of Sito Lake (Location 36, Fig. 8)

History and Development: The first recorded exploration in the Foster River area was in 1955, when Ameranium Mines Ltd. carried out geological and radiometric surveys over an area east of Place Lake. In 1968 Northwood Mines Ltd. acquired three large permits covering the area from the Churchill River to Middle Foster Lake. The following year, Trans Canada Resources Ltd. and Canadian Delhi Oil Ltd. (later Can Del Oil Ltd.) acquired joint ownership of the permits and flew airborne INPUT, magnetometer and radiometric surveys.

During 1969-70, TCR-CanDel performed follow-up work, including prospecting, mapping, geophysical surveying (EM, SP and

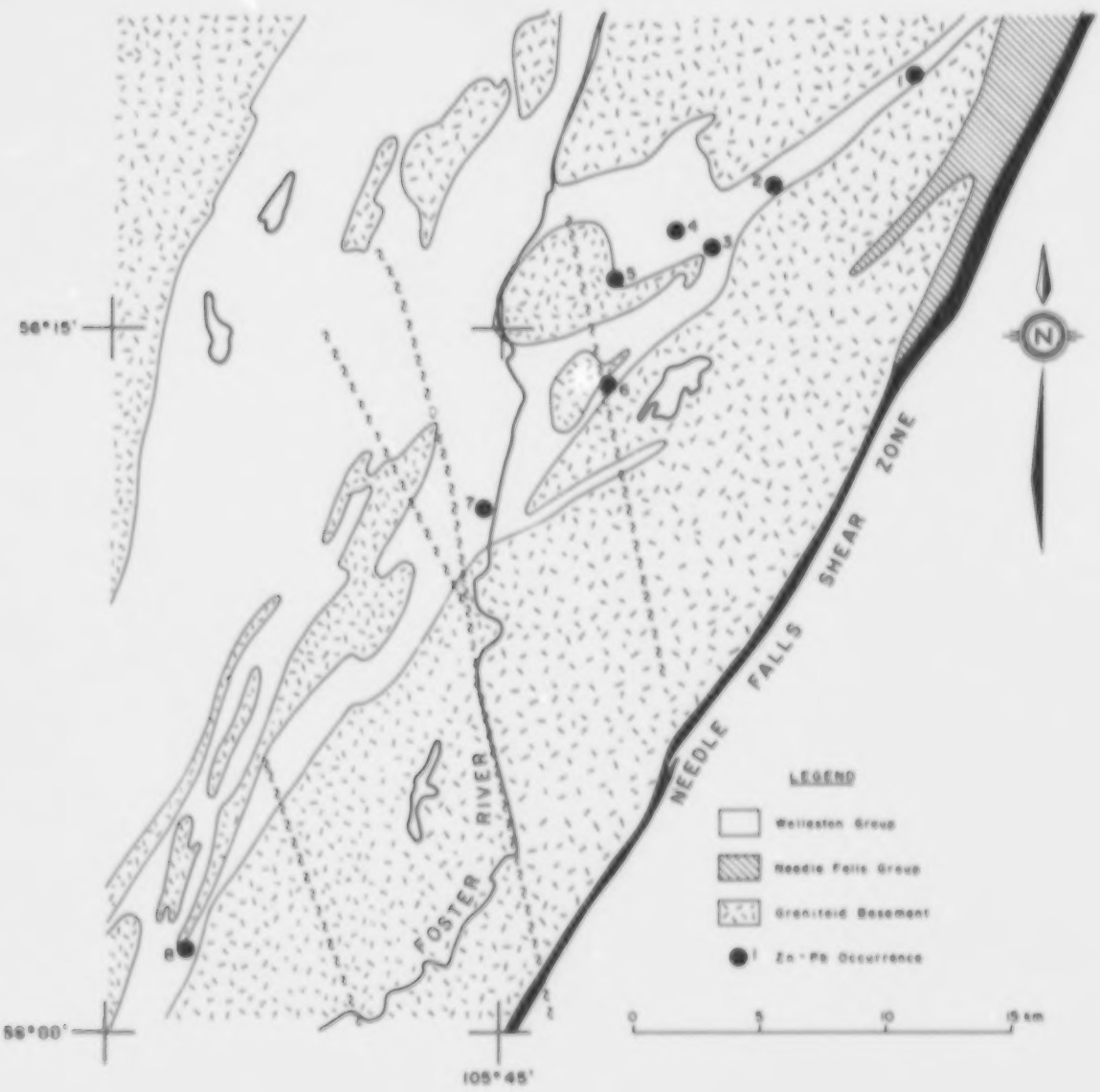


Figure 72. Geology and zinc-lead occurrences in the Sito-Fable Lakes area (geology modified after Ray, 1983a). *Occurrences:* 1. Mackie Lake, 2. Robyn Lake, 3. Sito East, 4. Sito West, 5. Sito Southwest, 6. George, 7. Fable Lake, 8. Un-named

magnetometer) and some trenching. Nothing of significance was found and the permits were allowed to lapse in 1971.

In 1971, Husky Oil Operations Ltd. entered into an agreement with CanDel to search for base metals. That year, E.F. Partridge, prospecting on behalf of the Husky-CanDel consortium, discovered significant zinc mineralization on the peninsula at Sito Lake (the Sito West showing). Subsequently, that same year, several other zinc-lead (and copper) showings were found, including the Sito East occurrence, over a large area, from Robyn Lake (in the north) to Fable Lake (in the south) (Fig. 72).

Subsequent to the discovery, in 1971 Husky-CanDel performed prospecting and

trenching, geological mapping, magnetometer, EM and SP surveys and limited geochemical surveys. The following year the joint venture carried out further prospecting, mapping and magnetometer surveying and drilled nine 'X-ray' holes (totalling 392 m).

In 1974, Husky Oil conducted further trenching (11 trenches) and sampled all the existing (13) trenches. As well, further geological mapping and magnetometer and soil geochemical surveys were carried out. The latter led to the discovery of a further showing ('Tom's showing') about 200 m southeast of the original showing. Husky drilled one more hole (30 m) in 1975 and three more holes (totalling 96 m) in 1976 in the vicinity of 'Tom's showing'. Highlights of the trenching are as follows:

Trench	Width (m)	Zn (%)	Pb (%)	Cu (%)	Ag (oz/ton)
1A	24.4	1.20	0.13	-	-
inc.	7.6	2.01	0.33	-	-
	1.5	1.12	0.01	-	-
	3.0	1.26	0.04	-	-
1B	1.5	1.67	0.12	-	-
2	3.0	1.01	0.06	-	-
3	16.8	2.82	0.38	-	-
inc.	6.1	5.22	0.74	-	-
7B	3.0	2.42	0.04	-	-
12	9.1	1.92	0.06	-	-

Highlights of the drilling are as follows:

Ddh	Width (m)	Zn (%)	Pb (%)	Cu (%)	Ag (oz/ton)
1-72	1.2	2.27	0.03	-	-
	10.0	2.14	0.19	-	-
inc.	2.4	4.93	0.47	-	-
2-72	11.0	4.22	0.58	-	-
3-72	2.0	1.84	0.02	-	-
4-72	1.5	1.95	0.13	-	-
5-72	1.8	1.30	0.01	-	-
	9.8	5.15	0.18	-	-
7-72	1.8	1.96	0.18	-	-
8-72	4.3	1.43	0.04	-	-
9-72	8.5	7.65	0.35	-	-
10-72	1.5	4.23	0.03	-	-
	9.8	4.57	0.06	-	-
1-76	1.5	1.01	0.02	-	-
2B-76	0.6	2.53	0.25	-	-
	1.5	1.10	0.04	-	-
	3.0	1.66	0.04	-	-

In 1979 a Mark V Petroleums and Mines Limited-SMDC joint venture conducted a heliborne EM and magnetometer survey over the area. The following year, Preussag Canada Limited entered into the joint venture and carried out a lake sediment survey over the area and performed ground EM and magnetometer surveys over an area immediately east of the Sito East showing. The following year, Preussag drilled four holes (totalling 462 m) immediately south of the showing. The drilling failed to locate any significant mineralization.

Geology and Mineralization: The Sito East showing is hosted within Wollaston Group quartzites. The immediate area of the showing is underlain predominantly by a thick sequence of well layered psammitic rocks. The latter comprise predominant sillimanite-bearing meta-arkose with intercalated quartzites and minor sillimanite-garnet-biotite pelites.

There are two mineralized quartzite horizons. The upper, 12 to 15 m thick orthoquartzite lies about 6 m above a lower, 3 m thick quartzite horizon.

The psammitic-quartzitic sequence is highly deformed into steep, northeasterly plunging, S-shaped folds.

Mineralization comprises disseminations and rare fracture fillings of sphalerite, pyrrhotite, pyrite and galena. Ruby red to black sphalerite locally forms up to 20 per cent of thin, dark grey bands (bedding?). Gahnite is conspicuous in places.

Mineralization appears to form several discontinuous pods; the best mineralization was encountered in the vicinity of Trench 3 and holes 1-72, 2-72 and 5-72. Here exploration work has outlined a pod approximately 60 m long and 10 m wide to a depth of about 30 m that grades ±4.5% Zn.

Remarks: The mineralized horizon continues to the north as the Robyn Lake showing and to the south as the George showing (Fig 72).

References: Fuh (1976b), Potter (1977, 1978, 1980), SEM Assessment Files 74-A-04-0008, -0009, -0010, -0011, -0014, -0017, 74-A-05-0009, -0015, -0019, -0020, -0022, -0026, -0027, -0028, -0030, -0031, -0032, -0034, -0042, -0043, SMI-0944

Name: **Sito West**

Location: On the peninsula in Sito Lake

(Location 37, Fig. 8)

History and Development: The first recorded exploration in the Foster River area was in 1955, when Ameranium Mines Ltd. carried out geological and radiometric surveys over an area east of Place Lake. In 1968 Northwood Mines Ltd. acquired three large permits covering the area from the Churchill River to Middle Foster Lake. The following year, Trans Canada Resources Ltd. and Canadian Delhi Oil Ltd. (later Can Del Oil Ltd.) acquired joint ownership of the permits and flew airborne INPUT, magnetometer and radiometric surveys.

During 1969-70, TCR-CanDel performed follow-up work, including prospecting, mapping, geophysical surveying (EM, SP and magnetometer) and some trenching. Nothing of significance was found and the permits were allowed to lapse in 1971.

In 1971, Husky Oil Operations Ltd. entered into an agreement with CanDel to search for base metals. That year, E.F. Partridge, prospecting on behalf of the Husky-CanDel consortium, discovered significant zinc mineralization on the peninsula at Sito Lake. Subsequently, that same year, several other zinc-lead (and copper) showings were found over a large area, from Robyn Lake (in the north) to Fable Lake (in the south) (Fig. 72).

Subsequent to the discovery, in 1971 Husky-CanDel performed sluicing and trenching, geological mapping and magnetometer, EM and SP surveys. The following year the joint venture carried out further sluicing and detailed mapping.

In 1974, Husky Oil conducted further trenching, sampling and geological mapping. Highlights of the trenching are as follows:

Trench	Width (m)	Zn (%)	Pb (%)	Cu (%)	Ag (oz/ton)
1	6.1	0.67	0.02	-	-
2	6.1	0.80	0.02	-	-
3	11.3	0.94	0.12	-	-
4	4.6	1.41	0.12	-	-
8	4.6	0.47	0.07	-	-

In 1979 a Mark V Petroleums and Mines Limited-SMDC joint venture conducted a heliborne EM and magnetometer survey over the area. The following year, Preussag Canada Limited entered into the joint venture and carried out a lake sediment survey over the area and performed ground EM and magnetometer surveys over an area immediately east of the Sito East showing. The following year, Preussag drilled four holes (totalling 462 m) immediately south of the Sito East showing. The drilling failed to locate any significant mineralization.

Geology and Mineralization: The Sito West occurrence is hosted within quartzites of the Wollaston Group.

The peninsula is underlain by a 160 m thick, internally-graded sequence formed by sillimanite-bearing meta-arkose overlain, in succession, by mineralized quartzite, graphitic sillimanite-biotite schist and garnet-biotite meta-arkosic gneiss. The mineralized quartzite unit is 12 to 20 m thick.

The sequence has been deformed by two periods of folding that post-date the early (D1) regional event. A conspicuous antiformal closure trends ENE with fold axes plunging steeply NNW.

Mineralization is confined to the quartzite unit. The latter exhibits gradation from a 'dirty' quartzite, containing garnet and biotite, towards the upper and lower contacts, to a 'clean' orthoquartzite in the central part of the unit. A sympathetic increase in Zn and Pb contents accompanies the trend toward cleaner quartzite.

Mineralization comprises pyrite, sphalerite, galena and rare pyrrhotite and magnetite. Gahnite is conspicuous in places, especially in the 'dirtier' quartzite facies. The sulphides form interstitial disseminations and rare fracture fillings.

References: Fuh (1976b), Harper (1975), Potter (1977, 1978, 1980), SEM Assessment Files 74-A-04-0008, -0009, -0010, -0011, -0014, 74-A-05-0009, -0015, -0019, -0020, -0022, -0026, -0027, -0028, -0030, -0031, -0032, -0034, -0042, -0043, SMI-0946

74-H-08-NE

Name: **Johnson Lake (Marina S)**

Location: West shore of the central part of Johnson Lake (Location 38, Fig. 8)

History and Development: In 1967, Great Plains Development acquired a large permit over the area and, the following year, flew INPUT and

radiometric surveys. During follow-up ground work, prospectors J. Bell and T. Ballantyne discovered galena-bearing quartzite in outcrop on the northwest shore of Johnson Lake. Great Plains carried out mapping, prospecting, magnetometer and IP surveys and drilled three holes (233 m) in 1968. In 1970 the company carried out further prospecting, a soil geochemical survey, and drilled six further holes (110 m) northeast of the showing. (See Marina Pb showing for further details)

In 1971 the company performed an EM survey over the ice, southwest of the Marina showing, and drilled nine further holes (608 m). Only five of these holes reached bedrock.

Significant results were only encountered in hole 3-71. These are summarized as follows:

Ddh	Width (m)	Zn (%)	Pb (%)	Cu (%)	Ag (oz/ton)
3-71	1.1	3.99	0.98	0.06	0.49

No further work was reported until 1977-79, when Marline Oil Corporation carried out regional programs in the area. This work comprised airborne EM and radiometric surveys, prospecting, mapping and geochemical surveys.

Geology and Mineralization: The showing is hosted within a narrow quartzitic unit that lies along the northwest flank of the Johnson River granite, an Archean basement inlier (Fig. 71). The host quartzite probably forms the basal part of the Aphebian Wollaston Group and is overlain by about 200 m of variably graphitic psammopelites and pelites.

Mineralization comprises disseminations of sphalerite, galena and pyrite.

Remarks: Quartzite-hosted Zn-Pb-Ag mineralization extends over a minimum strike length of 2.8 km along the northwest flank of the Johnson River granite, i.e. from the Marina occurrence in the northeast to the Johnson Lake occurrence in the southwest.

References: Coombe (1977), SEM Assessment Files 64-E-0005, 64-E-05-0012, 64-E-12-0004, 74-H-0005, -0006, 74-H-08-0001, -0004, -0006, -0009, -0010, -0022, -0024, -0029, -0030, -0033, 74-H-09-0014, -0019, -0020, SMI-1144

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APPENDIX: CLASS 3 OCCURRENCES

Table Format: Explanation

Map Sheet:	1:50,000 NTS area
Name:	As per Saskatchewan Mineral Deposits Index
Latitude:	As per Saskatchewan Mineral Deposits Index
Longitude:	As per Saskatchewan Mineral Deposits Index
Commodity Index:	As per Saskatchewan Mineral Deposits Index
Associated Commodities:	As per Saskatchewan Mineral Deposits Index
Mineralogy:	Mineralogy as described in the Saskatchewan Mineral Deposits Index (see abbreviations)
Host Rock:	Rock type enclosing the mineralization (see abbreviations)
Deposit Type:	1. Sulphide lens or stratum (typically py±po±gf) 2. Fracture filling (concordant or discordant) 3. Disseminated 4. Quartz vein hosted: veins, stockworks, infillings
Highest Reported Commodity Assay:	Assay of principal commodity/width (ft) Source of assay given in parentheses: (G) Grab (CP) Chip (CH) Channel (D) Drill Core (O) Ore (test) Sample (S) Soil (T) Trench (B) Biogeochemical
Highest Reported Associated Assay:	Highest assay of associated commodity; qualified as above
Source:	Saskatchewan Mineral Deposit Index Number

Abbreviations

1. Host Rock

B-Q-F	biotite-quartz-feldspar	Q-F	quartz-feldspar	Q-B-H	quartz-biotite-hornblende
H-B	hornblende-biotite	Q-H	quartz-hornblende	QTE	quartzite
H-B-Q	Hornblende-biotite-quartz	Q-B-F	quartz-biotite-feldspar		
Q-B	quartz-biotite	Q-B-Cl	quartz-biotite-chlorite		

2. Minerals

Ab	Albite	Fl	Fluorite	Ov	Olivine
Ad	Andalusite	Gf	Graphite	Pc	Pitchblende
Ag	Silver	Gn	Galena	Pd	Pentlandite
Ak	Actinolite	Go	Goethite	Pg	Plagioclase
Al	Almandine	Gr	Granite	Ph	Phosphate
Am	Amphibole	Gt	Garnet	Pl	Palladium
Ap	Apatite	Gu	Gummite	Po	Pyrrhotite
Ar	Argentite	Gy	Gypsum	Px	Pyroxene (Clinopyroxene)
As	Arsenopyrite	Hb	Hornblende	Py	Pyrite
At	Allanite	Hg	Cinnabar	Qz	Quartz
Au	Gold	Hm	Hematite	Ra	Radioactive mineral
Az	Azurite	Hy	Hypersthene	Re	Rare Earth
Bi	Biotite	If	Iron Formation	Rm	Rammelsbergite
Bo	Bornite	Il	Ilmenite	Ru	Rutile
Br	Bravoite	It	Illite	Sc	Sericite
Bs	Bismuth	Jm	Jamesonite	Sd	Siderite
By	Beryl	Kl	Kaolinite	Se	Selenide
Ca	Calcite	Ks	Cassiterite	Sf	Sphalerite
Ce	Cuprite	Lm	Limonite	Sh	Scheelite
Cf	Coffinite	Ls	Limestone	Sk	Scapolite
Ch	Chlorite	Ma	Marcasite	Sl	Sillimanite
Ci	Chalcocite	Mg	Magnetite	Sp	Serpentine
Cp	Chalcopyrite	Mi	Mica	St	Stibnite
Cr	Chromite	Mk	Microcline	Ta	Tantalum
Ct	Cordierite	Ml	Malachite	Te	Tellurium
Cu	Copper	Mo	Molybdenite	Th	Thorium
Cv	Covellite	Mr	Millerite	Ti	Titanium (Sphene)
Dp	Diopside	Mv	Muscovite	Tk	Talc
Do	Dolomite	Mz	Monazite	Tl	Tourmaline
Ee	Epidote	Nc	Niccolite	To	Topaz
Fd	Feldspar	Or	Orthoclase	Ze	Zeolite
Fg	Phlogopite	Os	Asbestos		

CU OCCURRENCES NTS AREA: 63-K

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD. INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC. ASSAY	S.M.D.I NUMBER
K-12	West Arm Schist Lake WAG claim no. 259	54-39-33	101-50-50	AU-11	Cu,Zn,Fe	Py,Gf,Cp,Sf	sheared andesite	2	0.35% Cu (G)	0.3% Zn (G)	0015
K-12	H.B.E.D. TIK claims	54-32-23	101-59-04	CU-1	---	Py,Po,Cp	rhyolite	1	---	---	0022
K-12	Bootleg Lake area SPOT claims	54-42-50	101-55-36	CU-3	Au,Ag	Cp,Py,Po	basic volcanics	1	3.01% Cu (G)	1.2 oz Ag (G)	0024
K-12	Conwest Exploration CHANCE claim no. 1	54-44-47	101-54-57	CU-5	Au,Ag	Py,Po,Sf,Cp,Qz Ep	basic volcanics	1, 2	1.29% Cu/ 0.31 m. (D)	0.28 oz Au/ 0.31 m. (D)	0026
K-12	Taylor-Kamis Lakes area MH claims	54-34-22	101-59-40	CU-8	Zn	Py,Cp,Sf	dolerite	---	---	---	0029
K-12	West Arm Schist Lake	54-39-05	101-51-37	Cu-9	Zn,Au	Py,Gf,Cp,Sf	sheared andesite	2	5.00% Cu/ 4.9 m. (D)	0.1% Zn/ (D)	0030
K-12	Tanyss Lake area southeast of	54-35-48	101-59-17	Cu-10	---	Py,Po,Cp	Amisk Group volcanics	4	0.91% Cu/ 0.12 m. (D)	---	0031
K-12	H.B.E.D. Mystic Lake area	54-37-26	101-58-13	CU-11	Zn	Py,Po,Cp	graphite schist, andesite	1	0.56% Cu/ 0.6 m. (D)	0.3% Zn/ 1.2 m. (D)	0032
K-12	H.B.E.D. TIK claims nos. 80, 81	54-38-18	101-58-28	CU-13	Zn	Po,Py,Cp	graphite schist, andesite	1	0.14% Cu/ 0.6 m (D)	0.4% Zn/ 0.3 m. (D)	0034
K-12	H.B.E.D. TIK claim no. 79	54-38-02	101-59-30	CU-14	Ni	Py,Po,Cp	dolerite, gabbro	1	0.1 to 0.76% Cu/ .09 to .55 m. (D)	0.05 to 0.18% Ni/ .09 to 0.55 m. (D)	0035
K-12	Norland Exploration Wekach Lake area	54-42-20	101-56-50	CU-16	Ag,Au	Py,Po,Cp	greywacke, andesite	---	1.0% Cu/ 0.2 m (D)	0.01 oz Au/ 0.2 m. (D)	0037
K-12	Dion Lake Cu showing	54-42-14	101-53-31	CU-18	---	---	basic volcanics	---	---	---	0039
K-12	H.B.E.D. CBS 2172	54-38-01	101-58-13	CU-20	Zn	Py,Po,Cp	B-H-Q-F gneiss, rhyodacite	---	0.25% Cu/ (D)	0.2% Zn/ (D)	0041
K-12	H.B.E.D. TIK claim no. 57	54-38-29	101-58-59	CU-21	Zn	Py,Po,Cp,Sf	quartz porphyry, andesite	1	0.14 to 1.18% Cu/ 0.03 to 0.39 m. (D)	0.1 to 0.8% Zn/ 0.03 to 0.39 m. (D)	0042
K-12	Granges Exploration SOON claims	54-39-45	101-58-50	CU-22	Ni	Py,Po,Cp,Mg	andesite, gabbro	---	0.27% Cu/ 0.6 m. (D)	0.06% Ni/ 0.6 m. (D)	1861
K-13	H.B.E.D. RYE number 8 fraction	54-45-14	101-54-13	CU-1	Ag,Au,Zn	Py,Cp	basic volcanics	---	0.12% Cu/ 0.3 m. (D)	0.27 oz Ag/ 0.3 m. (D)	0064
K-13	Precipice Lake DEB claims nos. 1 to 12	54-51-34	101-54-30	CU-2	Au,Ag,Zn,Ni	Py,Po,Cp,Sf	sheared andesite	2	2.18% Cu/ (D)	0.1% Zn/ (D)	0065
K-13	Dee Exploration DEB claims nos. 8 and 9	54-51-03	101-54-33	CU-3	As,Au	As,Py,Cp	basic volcanics, diorite	1, 2	---	---	0066
K-13	Standing Lake area Tess Showing No. 1	54-49-12	101-57-40	CU-4	Zn	Cp,Sf	rhyolite	20	2.34% Cu (G)	---	0067
K-13	H.B.E.D. TC claims	54-45-57	101-54-20	CU-5	Au,Ag	Py,Cp	andesite, diorite	1	1.23% Cu (G)	0.02 oz Au (g)	0068
K-13	Geological Survey of Canada Cu showing	54-47-10	101-54-20	CU-6	---	---	basic volcanics	---	---	---	0069
K-13	Flin Flon Lake area (west shore)	54-46-32	101-54-25	CU-7	---	---	porphyritic andesite breccia	2	---	---	0070
K-13	Hammell Lake area BEAVER claim no. 24	54-49-03	101-56-57	CU-11	Ag,Au	Py,Cp	quartz porphyry	2	0.18% Cu (G)	0.34 oz Ag (G)	0074

CU OCCURRENCES NTS AREA: 63-L

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD. INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC. ASSAY	S.M.D.I NUMBER
L-09	Wolverine Lake area Black Prince showing	54-44-04	102-04-35	CU-3	Au,Py	Py,Po,Cp	andesite, Q-B gneiss	1,3	0.14% Cu/ 0.3 to 0.6 m. (D)	0.01 oz Au/ 0.03 to 0.06 m. (D)	0115
L-09	Missi Island, Amisk Lake STAR claims	54-40-16	102-16-51	CU-6	Pb,Zn	Py,Qz,Cu,Cp,Sf, Sn	sheared dacite	2	---	---	0118
L-09	Curved Lake area Curved Lake C zone	54-42-18	102-03-04	CU-7A	Zn,Au,Ag,Ni	Py,Po,Cp	tuffaceous agglomerate	1,3	0.10% Cu/ (D)	0.10% Zn/ (D)	0119A
L-09	Curved Lake area Curved Lake D zone	54-42-18	102-03-04	CU-7B	Zn,Au,Ag,Ni	Py,Po,Cp	tuffaceous agglomerate	1,3	1.22% Cu/ 0.06 m. (D)	---	0119B
L-09	Muskeg Bay H.W. claims	54-33-45	102-21-05	CU-8	Zn,Au	Py,Po,Cp,Sf	greywacke	2Q	22.0% Cu (G)	0.44% Zn/ 0.3 m. (D)	0120
L-09	Missi Island, Amisk Lake BIG claim group	54-40-16	102-16-11	CU-9	Mo,Ag	Py,Cp	sheared rhyolite	2,3	---	---	0121
L-09	Sandy Bay, Amisk Lake TOK, MER claims	54-32-28	102-09-38	CU-11	---	Py,Po,Cp	andesite, dacite	1Q,3Q	---	---	0123
L-09	Brutus Lake Deposit	54-35-18	102-00-36	CU-14	---	Py,Cp,Sf	andesite, rhyolite	3Q	4.53% Cu/ 0.06 m. (D)	---	0126
L-09	Barney Lake area	54-37-32	102-00-22	CU-15	---	Cp	andesite tuff, dacite tuff	2	---	---	0127
L-09	Meridian Creek area SUL claims	54-31-53	102-07-19	CU-16	Au	Py,Cp	meta-volcanics	---	---	---	0128
L-09	Table Lake area EM claims	54-36-30	102-02-50	CU-17	Au,Ag,Zn	Py,Po,Cp	---	3	0.13% Cu/ 0.3 to 1.0 m. (D)	0.12 oz Ag/ 0.3 to 1.0 m. (D)	0129
L-09	Comeback Bay, Amisk Lake LUCKY STRIKE claim no 15	54-42-40	102-05-30	CU-18	Zn	Py,Po	feldspar porphyry	1,3	0.10 to 0.36% Cu/ 0.2 to 1.0 m. (D)	0.1% Zn/ 0.2 to 1.0 m. (D)	0130
L-09	J M Jacobson CAN-2 Showing	54-42-15	102-12-03	CU-19	Zn,Ag	Py,Mg	feldspar porphyry	3	1.71% Cu/ 0.08 m. (D)	0.152% Zn/ 0.08 m. (D)	0131
L-09	Amisk Lake area WM claim no. 3	54-39-05	102-19-53	CU-20	Py	Py,Cp	quartz stringers in rhyolite	3Q	---	---	0132
L-09	Oddan Lake area WING, REX claims	54-40-04	102-21-04	CU-21	Au	Py,As,Cp,Po	sheared dacite	3	0.1 to 0.12% Cu/ (D)	0.01 oz Au/ (D)	0133
L-09	Cougal Lake area CBS 112, HUB claims	54-40-39	102-12-08	CU-24	Mo	Py,Cp	quartz porphyry	---	0.1% Cu/ (D)	0.004 to 0.015% MoS2 (D)	0137
L-09	Missi Island, Amisk Lake KENO claims nos 2 to 8	54-40-11	102-07-03	CU-25	Zn	---	andesite	---	0.22% Cu/ 0.9 m. (D)	0.1% Zn/ 0.9 m. (D)	0138
L-09	Lookout Island, Amisk Lake	54-42-21	102-07-05	CU-26	---	Si,Cp,Py,Ch	mineralized quartz vein	1,3Q	---	---	0139
L-09	Crater Bay, Amisk Lake CBS 2142	54-38-20	102-13-55	CU-27	Au,Ag,Z.	Py,Po,Cp	sheared andesite, meta-sediments	1,2,3	0.1% Cu/ (D)	0.04 oz Au/ (D)	0140
L-09	Missi Island, Amisk Lake VAN claim no 20	54-38-40	102-11-25	CU-28	---	Py,Cp	graphite bands, quartz stringer	1,3	---	---	0141
L-09	Mosher Lake area RUSH claims nos 1 to 6	54-40-39	102-03-14	CU-30	---	Py,Po,Cp,Mg	andesite, diorite	1,3	---	---	0143
L-09	H.B.E.D. Curved Lake zone	54-41-50	102-02-25	CU-31	Zn,Ni,Ag,Au,Mo, Py	Py,Po,Cp	acid agglomerate	1	3.13% Cu (G)	1.61% Ni (G)	0144
L-09	Birch Lake area	54-41-14	102-03-14	CU-33	Zn,Py	Py	meta-gabbro	1,3	---	---	0146
L-09	H.B.E.D. CBS 3034	54-42-20	102-22-25	CU-34	---	Po,Cp	chloritic gabbro	3Q	0.71% Cu/ 0.2 .m (D)	---	1883
L-10	Sturgeon Weir River	54-38-27	102-35-26	CU-2	---	Py,Cp	quartz veins in slate	3Q	---	---	0183
L-10	Side Lake area CBS 918	54-42-06	102-55-40	CU-4	---	Ep,Cp	epidote lenses in basalt	3	---	---	0185
L-10	Snake Rapids Sturgeon Weir River	54-38-41	102-32-43	CU-7	---	Cp	quartz veins in granodiorite	2,3Q	---	---	0188
L-10	Hollyingdale Lake area Geosearch Permit No. 1	54-35-37	102-58-22	CU-8	Zn,Ni	Cp,Po,Py	dacite, rhyolite, meta-sediments	1,3	0.04 to 0.19% Cu/ (D)	0.1% Zn/ (D)	0189
L-10	Steeprock Lake area CBS 117	54-41-58	102-37-43	CU-9	Ag	Py,Po,Cp	rhyolite, dacite	1,3	0.3% Cu/ 0.15 m. (D)	0.3% Cu/ 0.46 m. (D)	0190
L-10	Sturgeon Weir River CBS 827	54-43-20	102-32-30	CU-11	Ag,Py	Py,Gf	biotite gneiss, chlorite gneiss	1	0.5% Cu/ 0.8 m. (D)	---	0192

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD. INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC. ASSAY	S.M.D.I NUMBER
L-10	Sturgeon Weir River SEL claim no 5	54-41-02	102-38-24	CU-12	Py	Py,Po,Cp	gabbro, peridotite	3	---	---	0193
L-10	BROOK claims	54-44-50	102-56-10	CU-13	Zn	---	garnet-B-H gneiss	2	---	---	0194
L-10	H.B.E.D. WAK claims nos 1 and 3	54-43-40	102-54-40	CU-14	Au,Ag	Cp,Cu,Py	calc-silicate gneiss	3	1.4% Cu (G)	0.2 oz Au (G)	0195
L-10	ROAD claim no. 1, CAT claim no. 5	54-43-15	102-55-10	CU-15	Ag	Py,Po,Cp	meta-sediments	3	0.1 to 0.25% Cu/ 0.6 2.2 m. (D)	0.04 to 0.11 oz Ag/ 0.6 to 2.2 m. (D)	0196
L-10	Hanson Lake area BERTRAM claim no. 3	54-41-55	102-51-30	CU-16	Zn,Ag	Py,Cp,Sf	Amisk tuffs, dacite	1,3	0.38% Cu/ 0.3 m. (D)	0.14% Zn/ 0.3 m. (D)	0197
L-10	Hanson Lake area CBS 757	54-41-00	102-48-40	CU-17	---	Py,Po,Cp	amphibolite, dacite	1,3	0.25% Cu/ 0.2 m. (D)	---	0198
L-10	Keputch Lake area	54-44-17	102-45-06	CU-18	Py	Py,Cp,Gf	gossan zone, quartz diorite	1,3	0.1% Cu/ 0.43 to 0.58 m. (D)	---	0199
L-10	Hanson Lake area CBS 918	54-41-29	102-54-06	CU-20	Zn,Py	Py,Po,Cp,Sf	rhyolite, dacite	3	0.06% Cu (G)	---	0201
L-10	Side Lake area	54-41-17	102-56-14	CU-21	---	Cp	fractured gabbro	2,3	---	---	0202
L-10	Side Lake area	54-41-19	102-54-59	CU-22	---	Cp,Py	hornblende granodiorite	1,3	---	---	0203
L-10	Pasowan Lake area AXE claims	54-40-52	102-57-05	CU-23	---	Cp,Py,Po	dacite, granodiorite	3	0.19% Cu/ 2.1 m. (D)	---	0204
L-10	Bertram Bay, Hanson Lake	54-42-33	102-52-28	CU-24	Py	Py,Po	dacite	3	0.23% Cu/ 0.24 m. (D)	---	0205
L-10	Bertram Bay, Hanson Lake	54-41-30	102-52-00	CU-25	---	Cp	---	3	0.37% Cu/ 1.0 m. (D)	---	0206
L-11	JUM no. 1 and Val no. 1 claims	54-43-41	103-07-19	CU-3	Ag,Mo,Au,Ni,Zn	Cp,Py,Po	sheared tuffs, andesites, qtzite	1, 3	1.42% Cu (G)	0.21% Mo (G)	0224
L-11	Deschambault Lake area BOB claim No. 3	54-43-55	103-14-15	CU-4	Mo,Ag,Ni	Py,Po,Cp,Mo	H-B gneiss, granulite	1,3	up to 0.05% Cu/ (D)	up to 0.05% Ni/ (D)	0225
L-11	Deschambault Lake area Brain showing	54-42-35	103-15-40	CU-5	---	Cp,Po	calcite stringers in amphibolite	2	0.25% Cu (G)	---	0226
L-11	Deschambault Lake area CBS 2174	54-43-33	103-14-42	CU-6	Py	Py,Po,Gf,Cp	B-Q-F gneiss, B-H gneiss	1,3	0.1 to 0.15% Cu/ 0.15 to 1.5 m. (D)	---	0227
L-11	Deschambault Lake area DES claim no. 10	54-42-06	103-06-47	CU-7	Py,Zn	Py,Gf,Cp,Po,Gt	H-F gneiss, Q-F gneiss	1,3	0.1% Cu/ 0.15 to 0.5 m. (D)	0.2% Zn/ 0.15 to 0.5 m. (D)	0228
L-12	Deschambault Lake area CBS 1452	54-44-15	103-35-45	CU-1	Ni	Cp,Po	serpentized peridotite	3	---	0.26% Ni (G)	0242
L-13	Povol Lake area	54-52-00	103-59-00	CU-1	Ag,Pb,Zn,Py	Py,Po	andesite, trachyte	3	0.2% Cu/ (D)	0.15% Zn/ (D)	0250
L-13	Brownell Lake area NOX claim no. 272	54-59-20	103-45-28	CU-2	---	Cp	dacite	3	---	---	0251
L-13	Brownell Lake area BROWN claim no. 10	54-58-41	103-46-47	CU-3	Au,Ag,Zn,Ni,Py	Py,Po,Gn,Se	biotite schist, sericite schist	1,3	---	---	0252
L-13	Tyrell Lake area CBS 572	54-57-25	103-44-42	CU-4	Py,Ni	Py,Po,Cp	H-B gneiss, H-Q-B gneiss	1,3	<0.1% Cu/ 0.06 to 1.1 m. (D)	< 0.1% Ni/ 0.06 to 1.1 m. (D)	0253
L-13	H.B.E.D. DES claims nos 105-110	54-45-55	103-36-28	CU-5	Zn,Py	Py,Po,Gf,Cp	rhyolite, dacite	1,3	0.2% Cu/ 0.18 m. (D)	0.2% Zn/ 0.18 m. (D)	0254
L-13	Deschambault Lake area CBS 2185	54-56-05	103-57-40	CU-6	Py,Zn	Py,Po,Gf	Q-B-H gneiss	1,3	0.15% Cu/ 0.5 m. (D)	0.2% Zn/ (D)	0255
L-13	H.B.E.D. CBS 2186	54-55-43	103-57-25	CU-7	Zn,Gf,Py	Py,Po,Gf	Q-B-H gneiss	1,3	0.1 to 0.2% Cu/ 0.4 to 0.9 m. (D)	0.1 to 0.2% Zn/ 0.4 to 0.9 m. (D)	0256
L-13	Deschambault Lake area DES claims	54-54-41	103-57-00	CU-8	Py,Zn	Py,Cp,Sf	Q-B-H gneiss	4	0.15% Cu/ (D)	0.3% Zn/ (D)	0257
L-13	Alsmith Lake area	54-57-18	103-52-15	CU-9	Py,Gf,Zn	Py,Gf,Cp,Sf	Q-B-H gneiss	4	0.3% Cu/ 1.4 m. (D)	0.8% Zn/ 1.4 m. (D)	0258
L-13	Knox Syndicate YAK claim no. 1	54-58-58	103-45-03	CU-10	As,Zn,Au	Py,Po,As,Sf	Q-B-F gneiss	1,3	0.06% Cu/ 1.1 m. (D)	0.02 oz Au/ 1.1 m. (D)	0259
L-13	Knox Syndicate KAY claim no. 1	54-58-49	103-44-08	CU-11	Au,Py,Zn	Py,Po,Cp,Sf	biotite schist	2Q, 3	0.5% Cu (G)	0.01 to 0.04 oz Au/ 0.24 to 1.0 m. (D)	0260

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD. INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC. ASSAY	S.M.D.I NUMBER
L-14	Deschambault Lake west shore	54-59-35	103-18-57	CU-2	---	Cp	calc-silicate	3	---	---	0271
L-14	Deschambault Lake area	54-53-56	103-15-12	CU-3	---	Po,Cp	Q-F schist, granulite	3	---	---	0272
L-14	Deschambault Lake area Harper Island	54-53-02	103-10-07	CU-4	---	Py,Po,Cp	calc-silicate	1, 3	---	---	0273
MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD. INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC. ASSAY	S.M.D.I NUMBER
L-14	Deschambault Lake Northeast Arm	54-58-15	103-11-20	CU-5	---	Py,Gf,Cp	calc-silicate	2, 3	---	---	0274
L-15	H.B.E.D. MAL zone MAL claims 120 to 128	54-45-41	102-48-35	CU-2	Py,Gf	Py,Gf,Po,Cp	amphibolite, granulite	3	1.04% Cu/ 0.3 m. (D)	---	0287
L-15	H.B.E.D. CBS 115	54-46-06	102-38-29	CU-3	Au,Ag	Py,Po,Gf	intermediate volcanics	1, 3	0.45% Cu/ 0.1 m. (D)	0.01 oz Au (D)	0288
L-15	Morton Lake area JADE claims	54-45-35	102-40-10	CU-4	---	Cp	migmatite, diorite	---	---	---	0289
L-15	A.L. Parres Scoop Rapids area	54-45-50	102-38-10	CU-5	---	Cp	meta-diorite	---	2.5% Cu (G)	---	0290
L-16	H.B.E.D. Raft Zone	54-46-15	102-01-10	CU-1	Ag,Ni,Co,Mo	Mg,Py,Po	andesite	1	0.14 to 0.65% Cu/ 0.2 to 0.9 m. (D)	0.17 oz Au/ 0.2 to 0.9 m. (D)	0300
L-16	Tyrell Lake, south of	54-52-32	102-08-45	CU-2	Zn,Py	Py,Po,Sf	biotite garnet gneiss	1	---	---	0301
L-16	Otonadah Lake Otonadah Lake Zone	54-53-04	102-11-55	CU-3	Py	Py,Po,Cp	garnet biotite gneiss	1	---	---	0302
L-16	Judique Lake showings	54-53-57	102-23-18	CU-4	Zn,Py	Py,Po,Cp,Sf	garnet gneiss	1	---	---	0303
L-16	Nichol Lake showing	54-53-08	102-18-28	CU-7	Py	Py,Po,Cp	pyroxenite	3	---	---	0306
L-16	H.B.E.D. Abbot Lake Zone	54-46-00	102-30-00	CU-9	Zn	Py,Po,Gf,Sf	amphibolite, andesite	3	0.2% Cu/ 0.4 m. (D)	0.2% Zn/ 0.3 m. (D)	0308
L-16	Neagle Lake JEFF claims nos. 1, 2	54-46-06	102-24-45	CU-10	Zn,Py,Au	Py,Po,Cp,Sf	mica chlorite schist	3	---	---	0309
L-16	H.B.E.D. TOK claims nos. 1 to 50	54-50-37	102-04-34	CU-11	Ag,Zn,Au,Ni	Py,Po	volcanics	1, 3	0.1 to 0.2% Cu (G)	0.5% Zn (G)	0310

CU OCCURRENCES NTS AREA: 63-M

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD. INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC. ASSAY	S.M.D.I NUMBER
M-01	Charbonneau Island SAM claims nos. 2 to 5	55-14-27	102-23-18	CU-1	---	Cp,Py	pegmatite, migmatite	3	---	---	0317
M-01	H.B.E.D. VICKI-LAD claims	55-02-54	102-15-19	CU-2	Au	Py	B-Q-F gneiss	3	---	---	0318
M-03	Nielson Lake TANK claims 85 to 92	55-05-06	103-09-54	CU-1	---	Py,Cp	felsic gneiss	2, 3	---	---	0333
M-03	Prongua Lake area	55-07-53	103-12-08	CU-3	Py,Au,Zn,Ni,Mn, Fe	Py,Po,Cp	basic volcanics	1, 3	1.62% Cu (G)	0.10 oz Au (G)	0335
M-03	Dot Mineral Enterprises CBS 917	55-13-46	103-07-39	CU-6	Au,Ag,Zn,Ni,Pb	Gf,Py,Po,Cp,Sf	Q-B-H schist	1, 3	0.05 to 0.08% Cu/ 1.5 m. (D)	0.14 oz Ag/ 0.15 m. (D)	0338
M-04	LYN claim no. 10	55-00-30	103-37-45	CU-2	---	Cp	calc-silicate	3	---	---	0340
M-05	Trade Lake area SUM-ORE claims	55-27-29	103-37-25	CU-1	Zn,Co,Mo,Ni,Ag, Au	Py,Po,Cp,Bo,Sf	volcanic-norite contact	1, 2, 3	4.51% Cu (G)	4.75% Zn (T)	0344
M-05	MAC-MORRIS-NOR claim groups	55-18-24	103-35-37	CU-2	---	Cp,Py,Po,Mb, Bi,Ch	M-B-chlorite schist	3	0.09% Cu (G)	---	0345
M-05	Strauss Exploration TRAILL claims 1 to 22	55-25-29	103-45-02	CU-3	Zn,Ag,Au,Ni	Py,Po,Cp	meta-gabbro	1, 2, 3	0.05% Cu (G)	0.1 oz Ag (G)	0346

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD. INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC. ASSAY	S.M.D.I NUMBER
M-06	H.B.E.D. WAN claims	55-27-00	103-07-30	CU-1	Zn	Gf,Py,Po,Cp	Q-F gneiss	3	1.28% Cu (G)	0.2% Zn (G)	0349
M-06	Quintinor Mining CAN claims nos. 1 to 3	55-29-45	103-21-30	CU-2	Ag	Cp,Po	meta-volcanic	3	---	---	0350
M-06	D. Macdonald ACT claims nos. 1 to 18	55-17-00	103-07-30	CU-3	---	Gf,Hb,Bi,Py,Po,Cp	H-B-garnet gneiss	3	---	---	0351
M-06	H.B.E.D. Permit No. 2	55-27-40	103-10-50	CU-4	Py,Po,Gf	Cp,Py,Po,Gf	basic tuff, biotite gneiss	1, 3	0.3% Cu/ 0.3 m. (D)	Tr. Zn./ 0.3 m. (D)	1863
M-06	H.B.E.D. Permit No. 2	55-29-10	103-02-45	CU-5	Zn	Po	augen gneiss, diorite	1, 3	0.25% Cu/ 0.3 m. (D)	0.3% Zn/ 0.3 m. (D)	1865
M-06	New North Minerals CBS 1322	55-18-20	103-02-10	CU-6	Ni,Au	Py,Po,Cp,Gf	hornblende gneiss	3	0.49% Cu (G)	0.01% Ni (G)	1868
M-07	Western Nuclear Mines Belcher Lake area	55-15-37	102-31-40	CU-1	---	Py,Po,Cp,Gf	calc-silicate	3	---	---	0357
M-07	Ohoo Lake area Ohoo Lake showing	55-25-02	102-30-08	CU-2	---	Cp	pegmatite	2, 3	---	---	0358
M-08	Wet Lake area Kipahigan Showing	55-26-40	102-07-33	CU-1	Ni,Au,Co,Ag	Py,Po,Cp	granodiorite sill	1, 3	1.1% Cu (G)	1.71% Ni (G)	0359
M-08	H.B.E.D. DICK-TAP claims	55-16-22	102-01-05	CU-2	---	Py,Po,Cp,Gf,Mg,Il	biotite granulite	1	---	---	0360
M-08	Selco CBS 852	55-26-24	102-09-22	CU-3	Au,Zn,Ni,Ag	Gf,Py,Po,Cp,Mg	biotite gneiss	1	0.31% Cu (G)	0.04 oz Au (G)	0361
M-10	Wapumon Lake area	55-38-13	102-57-30	CU-1	Py	Py,Po	calc-silicate	1	---	---	0364
M-11	Great Plains CBS 1401 and 1406	55-41-00	103-25-00	CU-2	Cu,Au,Ag	Cp	calc-silicate	1, 3	2.0% Cu (G)	0.6 oz Au (G)	0368
M-11	H.B.E.D. TOY claims	55-35-40	103-21-30	CU-3	---	Py,Cp,Mg,Po	greywacke, gabbro	2, 3	---	---	0369
M-11	Tabbernor Lake area	55-36-25	103-16-45	CU-4	---	Ce	hornblende gneiss	---	---	---	0370
M-11	Kettle Falls area	55-30-55	103-14-30	CU-5	---	Ce	granodiorite	---	---	---	0371
M-11	Tabbernor Lake area	55-38-35	103-17-05	CU-6	---	Cp,Ml	meta-arkose	1, 3	---	---	0372
M-11	Uskik Lake area	55-32-25	103-16-15	CU-7	---	Cp,Ml,Py	mineralized quartz veins	1Q, 3Q	---	---	0373
M-11	A.L. Parres Permit No. 3	55-39-00	103-09-18	CU-8	Au,Ag,Ni	Py,Po,Cp	Q-F-B gneiss	1, 2, 3	0.08% Cu/ 9.1 m. (D)	0.04 oz Ag/ 9.1 m. (D)	0374
M-12	Laurel Lake area ANT claims	55-32-05	103-59-10	CU-1	---	Py,Po,Cp	Q-H-F gneiss	1, 3	---	---	0383
M-12	E.L. Morey LUCKYMAN claim group	55-42-35	103-32-04	CU-2	Au	Py,Cp	Q-H-B gneiss	2, 3	0.44% Cu/ (D)	0.02 oz Au/ (D)	0384
M-12	Glennie Lake , NE of	55-44-23	103-52-54	CU-3	---	Py,Po,Cp	calc-silicate	3	---	---	0385
M-13	E.L. Morey BARBARA claims	55-54-25	103-51-00	CU-1	Zn,Fe,Au	Cp	calc-silicate	1	0.02% Cu (G)	Tr. Zn (G)	0390
M-13	E.L. Morey LOREN claims	55-51-24	103-56-31	CU-2	---	Py,Cp	calc-silicate	3	---	---	0391
M-13	Truscott-Bailey Lakes area	55-48-18	103-38-59	CU-3	---	Cp	pegmatite	3	---	---	0392
M-13	Bailey Lake area	55-49-06	103-33-35	CU-4	---	Cp	pegmatite	3	---	---	0393
M-14	Steephill Rapids, Reindeer River area	55-51-52	103-01-14	CU-2	---	Cp	hornblende gneiss pegmatite	3	---	---	0402
M-14	Blackford Lake area	55-46-02	103-15-37	CU-3	---	Cp	hornblende gneiss granulite	2	---	---	0403
M-15	G. Lawson CBS 986	55-58-34	102-53-20	CU-1	---	Cp,Py,Po,Gf	calc-silicate	1, 3	---	---	0404
M-15	A.L. Parres CAT claims	55-51-40	102-37-15	CU-2	---	Cu,Py,Po	Q-B-H gneiss	3	---	---	0405

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD. INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC. ASSAY	S.M.D.I NUMBER
M-15	G. Lawson CBS 864	55-50-36	102-38-15	CU-4	---	Py,Cp,Lm,Po	amphibole gneiss	3	---	---	0407
M-15	Guilloux showing	55-49-18	102-30-57	CU-5	---	Po,Gf,Cp	diopside gneiss	1	---	---	0408
M-15	Guilloux Lake area	55-45-15	102-33-35	CU-6	---	Cp,Po,Gf,Lm	pelitic gneiss	2	---	---	0409

CU OCCURRENCES NTS AREA: 64-D

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD. INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC. ASSAY	S.M.D.I NUMBER
D-03	J. Brain ECKO claim	56-07-10	103-09-00	CU-1	Ag,Zn,Au,Py,Ni	Cp,Py,Po	meta-sediment	3	0.11% Cu (G)	0.2 oz Ag (G)	0419
D-04	Brabant Lake area CBS 1342	56-03-45	103-46-22	CU-1	Gf,Py,Pb	Py,Po,Gf,Cp,Gn	migmatite, pegmatite	1	0.10 to 0.18% Cu/ 1.0 m. (D)	---	0428
D-04	Brabant Lake area TAP-TAR claims	56-02-34	103-43-42	CU-2	Py,Gf,Zn,Fe	Py,Gf,Cp,Sf,Mg	calc-silicate	1, 3	0.36% Cu (G)	---	0429
D-04	Canadian Nickel Company NAX claims	56-05-29	103-44-20	CU-3	Py	Py,Po,Cp	Q-B-F gneiss	3	---	---	0430
D-04	Tara Mining Ltd Wierzycki Lake area	56-02-55	103-55-00	CU-4	Py	Po,Cp,Py	hornblende gneiss	3	0.79% Cu (G)	---	0431
D-04	Tara Mining Ltd Wierzycki Lake area	56-00-30	103-59-40	CU-5	Py	Po,Py,Cp	hornblende gneiss	3	---	---	0432
D-04	H.B.E.D. CBS 2201	56-12-30	103-33-00	CU-6A	Py,Fe,Gf,Ni,Ti	Po	Q-B-F gneiss	1, 3	---	4.05% Ti/ 0.6 m. (H)	0433A
D-04	H.B.E.D. CBS 2201	56-12-30	103-33-00	CU-6B	Py,Fe,Gf,Ni,Ti	Po,Cp,Gf	Q-H gneiss	[illegible]	---	---	0433B
D-04	H.B.E.D. CBS 2201	56-12-30	103-33-00	CU-6C	Py,Fe,Gf,Ni,Ti	Co,Gf	actinolite-feld. gneiss	1, 3	---	---	0433C
D-04	Contact Lake, SW shore	56-14-00	103-41-35	CU-7	Py	Cp	---	3	---	---	0434
D-04	Kelly-Brabant Lakes area	56-01-47	103-31-20	CU-8	Py	Cp,Py,Po	calc-silicate	3	---	---	0435
D-04	Brabant Lake, Yaworski Island area	56-01-06	103-39-52	CU-9	Py	Cp,Po	schistose rocks	3	---	---	0436
D-04	Nistoassini Lake	56-13-40	103-46-50	CU-10	Cu,Au	---	hornblende schist	---	1.45% Cu (G)	0.02 oz./ton Au (G)	0437
D-04	Contact Lake area C-2 grid	56-14-30	103-44-00	CU-12	Au	---	andesite, basalt	3	0.56% Cu (G)	310 ppb Au (G)	1967
D-05	Granges Exploration CBS 2974	56-22-27	103-38-50	CU-1	Zn,Ni,Au,Ag	Cp,Po,Py,Mg	gabbro	3	0.07 to 0.88% Cu/ (D)	0.03% Zn/ (D)	0454
D-05	South Fleming Lake area	56-22-14	103-30-04	CU-2	Zn,Ni,Au,Ag	Cp,Po	pyroxenite,gabbro	3	---	---	0455
D-05	Don Fisher CBS 547	56-24-08	103-32-10	CU-3	Ni,Zn,Ag,Au	Cp,Po,Py,Pd,Mg	pyroxenite,gabbro	3	Tr. Cu/ (D)	0.10 to 0.12% Ni/ (D)	0457
D-05	South Fleming Lake area	56-23-56	103-34-08	CU-4	Zn,Ni,Ag,Au	Cp,Po	pyroxenite,gabbro	3	---	---	0456
D-05	May Lake, North end area	56-26-22	103-40-59	CU-5A	Zn,Au,Py	Py,Po,Sf	quartzite, arkose	3	9.84% Cu (G)	1.23% Zn (G)	0458A
D-05	May Lake, North of	56-26-22	103-40-59	CU-5B	Zn,Au,Py	Py,Po	Quartz amphibole schist	3	0.15% Cu (G)	Tr. Au (G)	0458B
D-05	May Lake, Northeast of	56-26-22	103-40-59	CU-5C	Zn,Au,Py	Py,Po	unspecified boulder	1, 3	---	0.51% Zn (G)	0458C
D-06	Reindeer Lake, Big Island	56-16-18	103-15-04	CU-1	---	Cp,Py	mylonite	3	---	---	0477
D-06	Reindeer Lake, West side of Deep Bay	56-26-43	103-06-30	CU-2	Bo,Cc	Bo,Cp,Ci	hornblendite	3	---	---	0478
D-06	Magenta Exploration Permit No. 1	56-26-18	103-22-20	CU-3	Au,Py	Py,Po,Cp	H-Q gneiss	1	0.02% Cu (G)	0.02 oz Au (G)	0479
D-07	Augustus Exploration Gladman Lake area	56-15-33	102-53-42	CU-1A	Ag,Au	Py,Po,Cp,Gf	acid volcanics	3	---	---	0488A

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD. INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC. ASSAY	S.M.D.I NUMBER
D-07	Augustus Exploration Gladman Lake area	56-15-33	102-53-42	CU-1B	Ag,Au	Py,Po	meta-volcanics	3	0.35% Cu (G)	0.34 oz Ag (G)	04888
D-08	Augustus Exploration Kamuchawie Lake area	56-21-02	102-07-43	CU-1	Py,Mo	Cp,Mo,Gf,Py	granite, gneisses	3	---	---	0490
D-08	Augustus Exploration Wapus Lake area	56-24-59	102-08-24	CU-2	Ag	Bo,Cp,Cu,	pegmatite	3	---	0.3 oz Ag (G)	0491
D-09	Great Plains CBS 113	56-40-41	102-19-19	CU-1	Ni,Py	Cp,Po,Py	meta-gabbro	3	---	---	0495
D-10	Augustus Exploration JIM claims	56-36-57	102-50-33	CU-1	Zn,Py	Py,Po,Cp	meta-sediments, meta-volcanics	1, 3	---	0.17% Zn (G)	0502
D-10	S. Hornseth LB claims nos. 1 to 37	56-38-10	102-51-35	CU-2	Py	Py,Po,Cp	amphibolite, meta-volcanics	3	0.13% Cu (G)	---	0503
D-10	Augustus Exploration Duck Lake area	56-34-27	102-58-35	CU-3	Py,Zn,Au	Py,Po	meta-volcanics	1, 3	0.77% Cu (G)	0.20 to 0.12% Zn (G)	0504
D-10	Reindeer Exploration CBS 814, BB claims	56-38-00	102-34-03	CU-4	Zn,Py	Py,Po,Cp	arkose, quartzite	3	---	---	0505
D-10	Milton Island area	56-41-45	102-38-00	CU-5	Py	Py,Po,Cp	quartz diorite	3	---	---	0506
D-10	Butler Island area	56-39-00	102-40-00	CU-6	U,Py	Cp,U,Gf	quartz diorite	3	---	---	0507
D-11	Magenta Exploration Permit No. 1	56-30-12	103-15-03	CU-1	Ag,Co,Fe,Ni	Py,Po,Cp	meta-volcanics	3	0.11 to 0.26% Cu (D)	---	0514
D-11	Sherritt Gordon Magenta Expl. Permit 1	56-35-55	103-02-30	CU-2	Ag,Co,Fe,Ni	Py,Po	amphibole gneiss	1, 3	0.1 to 0.26% Cu/ (D)	0.02 to 0.52 oz Ag/ (D)	0515
D-11	Magenta Exploration Permit No. 1	56-30-16	103-15-02	CU-3	---	Py,Po	meta-volcanics	1, 3	0.83% Cu (G)	---	1786
D-12	Sherritt Gordon	56-38-47	103-55-58	CU-1	Fe,Ni,Gf,Ag	Po,Gf,Py	quartzite, graphite gneiss	1	0.02 to 0.11% Cu/ (D)	0.02 to 0.06% Ni/ (D)	0521
D-14	Magenta Exploration Permit No. 1	56-45-18	103-09-08	CU-1	Py	Cp,Py	diabase	2, 3	---	---	0524
D-15	Straus Exploration AMISKIT claims	56-46-16	102-32-35	CU-1	Py	Py,Po,Cp	quartz diorite	1, 3	---	---	0531
D-16	Straus Exploration AMISKIT claim no. 1	56-55-27	102-21-25	CU-1	Py,Gf,U,Fe	Po,Cp,Il,Zn,Gf	amphibole gneiss, pegmatite	1, 3	0.04% Cu (G)	---	0534

CU OCCURRENCES NTS AREA: 64-E

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD. INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC. ASSAY	S.M.D.I NUMBER
E-02	Wepusko Bay area CBS 785	57-04-35	102-41-30	CU-1	Ag,Zn,Au	Py,Po,Cp,Sf	Q-B gneiss	1,3	0.12% Cu/ (D)	6.3% Zn/ (D)	0538
E-04	Don Fisher CBS 1338	57-11-38	103-55-12	CU-2	Cp,Po,Py	Cp,Po,Py,Mg	meta-diorite, gabbro	3	---	---	1843
E-04	Don Fisher CBS 1333	57-10-42	103-45-15	CU-3	Cp,Po,Py	Cp,Po,Py	gabbro, granite	3	---	---	1844
E-05	Pyett Lake, NE bay	57-27-15	103-36-15	CU-1	---	Cp	hornblende gneiss	3	---	---	0544
E-05	S.M.D.C. MPP 1120	57-19-50	103-48-10	CU-2	Ni	Cp,Py,Po	hornblendite, quartz gabbro	3	0.17% Cu (G)	0.054% Ni (G)	0545
E-05	Combe Lake area	57-20-30	103-43-50	CU-3	---	Cp	dioritic gabbro	3	---	---	0546
E-05	Courtney Lake area	57-24-40	103-55-35	CU-4	---	Cp	meta-basaltic andesite	3	---	---	0547
E-06	Husky Oil Ltd CBS 1812 to 1822	57-22-55	103-08-20	CU-1	Zn,Ni,Po,Py	Cp,Py,Po,Sf,Mc	gabbroic boulder quartzite	3	---	---	0558
E-06	Husky Oil Ltd Permit No. 2	57-15-42	103-18-33	CU-2	---	Mg,Cp,Py	B-H gneiss, basic sill	3	---	---	0558
E-06	E. Partridge Norwick Lake area	57-25-50	103-20-40	CU-3	Ni,Mo	Cp,Py,Po,Cu,Mo	mafic intrusive, meta-sediment	3	0.17% Cu (G)	0.11% Ni (G)	0557
E-06	E. Partridge Norwick Lake area	57-25-35	103-21-10	CU-4A	Ni,Mo	Cp,Py,Po,Cu,Mo	mafic intrusive, meta-sediments	3	0.08% Cu (G)	0.05% Ni (G)	0558A

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD. INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC. ASSAY	S.M.D.I NUMBER
E-06	E. Partridge Norwick Lake area	57-25-35	103-21-10	CU-4B	Ni,Mo	Cp,Py,Po,Cu,Mo	mafic intrusive, meta-sediments	3	---	0.02% MoS2 (G)	05588
E-10	Husky Oil Ltd Permit No. 2	57-37-24	102-41-00	CU-1	Py,Ag,Zn,Ni,Gf, Au	Po,Py,Cp,Gf	graphitic shear breccia	1, 3	0.06% Cu (G)	0.09% Zn (G)	0569
E-10	Swan Lake area	57-35-28	102-59-17	CU-2A	Py,Fe	Py,Po,Cp,Mt	meta-volcanics, pegmatite	3	---	---	0570A
E-10	Swan Lake area	57-35-26	102-59-17	CU-2B	Py,Fe	Py,Po,Cp,Mt	meta-volcanics, pegmatite	3	---	---	0570B
E-11	Don Fisher Mullin Lake area	57-35-40	103-18-35	CU-1	Pb	Cp,Gn	contact between gabbro, granite	3	---	---	0571
E-11	Voyageur Petroleum Permit No. 1	57-32-48	103-04-23	CU-2	Py,Fe	Py,Po,Cp,Mg	meta-pyroxenite, gabbro	3	--	---	0572
E-11	Don Fisher Mullin Lake area	57-37-15	103-10-50	CU-3	---	Py,Cp,Cu	meta-argillite, meta-volcanics	3	---	---	0573
E-11	E. Partridge Permit No. 1	57-39-35	103-11-05	CU-4	---	Cp	quartz,hornblende float	3	---	---	0574
E-11	E. Partridge Permit No. 1	57-40-10	103-12-00	CU-5	---	Cp,Py	vein quartz	3Q	---	---	0575
E-11	D. Carlson CBS 6878	57-44-15	103-04-45	CU-6	Cp,Py,Po	Cp,Py,Po	argillite	2, 3	---	---	1825
E-12	Great Plains CBS 1044, 1045	57-40-30	103-55-30	CU-1	Gf	Cp,Bo,Mo,Py,Po, Ma,As,Sf	quartzite float	3	1.48% Cu (G)	---	1697
E-12	Falconbridge Permit No. 1	57-39-55	103-41-15	CU-2	Ag	Ct,Py,Po,Gf	arkose boulder	3	0.37% Cu (G)	Tr. Ag (G)	0595
E-12	Great Plains CBS 1044, 1045	57-37-15	103-59-35	CU-3	Ag	Cp,Mo,Bo,Py,Po, Ma,As,Sf	quartzite float	3	0.97% Cu (G)	0.28 oz Ag (G)	1695
E-12	Great Plains CBS 1044, 1045	57-41-20	103-53-35	CU-4	Py	Cp,Bo,Mo,Py,Po, Ma,As,Sf	quartzite float	3	0.63% Cu (G)	---	1696
E-13	Gulf Minerals Ml 5227	57-53-21	103-55-00	CU-1	Cp,Py,Po,Gf,Ma	Py,Po,Cp,Gf	actinolite-biotite gneiss	1, 3	---	---	1828
E-13	Great Plains Permit No. 2	57-46-50	103-42-30	CU-2	---	Po,Cp	quartzite	3	0.87% Cu (G)	---	1705
E-13	Denison Mines MPP 1042	57-48-32	103-40-41	CU-3	Cp,Py	Cp,Py,Po	calc-silicate, quartzite	3	---	---	1826
E-16	Lacana Minerals MPP 1148	57-53-32	102-25-00	CU-1	Py,Po,Ma	Py,Po,Cp,Bo,Cu, Ml	basaltic dyke, gabbro	3	---	---	1834

CU OCCURRENCES NTS AREA: 64-L

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD. INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC. ASSAY	S.M.D.I NUMBER
L-02	Heinz Lake area C.R. 619	58-08-00	102-42-10	CU-1A	Mo,Pb,Zn,Ag	Mo,Py,Po,As,Cp, Sf,Gn,Mt	quartzite	3	0.01% Cu (G)	0.25% Zn (G)	0612A
L-02	Heinz Lake area C.R. 619	58-08-00	102-42-10	CU-1B	Mo,Pb,Zn,Ag	Mo,Py,Po,As,Cp, Sf,Gn,Mt	quartzite	3	0.01% Cu (G)	0.28% Zn (G)	0612B
L-02	Heinz Lake area C.R. 619	58-08-00	102-42-10	CU-1C	Mo,Pb,Zn,Ag	Mo,Py,Po,As,Cp, Sf,Gn,Mt	quartzite	3	---	---	0612C
L-04	Gulf Minerals ML 5216	58-11-03	103-44-00	CU-1	Pb,Ni	---	overburden sample	---	1.35% Cu (G)	0.22% Pb (G)	1927
L-04	Gulf Minerals ML 5217	58-10-50	103-02-08	CU-2	Ag	---	biotite paragneiss	---	0.76% Cu (G)	0.16 oz Ag (G)	1932
L-06	Ensign Oils Ltd Permit No. 2	58-21-08	103-13-00	CU-1	---	Py,Cp	sheared biotite gn., quartzite	2, 3	---	---	0622
L-06	Gulf Minerals Permit No. 11	58-23-12	103-21-45	CU-2A	---	Cp,Py,Po,Gf,Mg, Il	meta-arkose, biotite gneiss	3	---	---	0623A
L-06	Gulf Minerals Permit No. 11	58-23-12	103-21-45	CU-2B	---	Cp,Py,Po,Gf,Mg, Il	biotite paragneiss	3	---	---	0623B
L-06	C. Cansell CBS 2656	58-28-05	103-16-08	CU-3A	Mo	Py,Mg,Cp,Gf,Mo	hornblende gneiss meta-arkose	3	---	---	0624A
L-06	C. Cansell CBS 2656	58-28-05	103-16-08	CU-3B	Mo	Py,Mg,Cp,Gf,Mo	meta-arkose, pegmatite veins	3Q	---	---	0624B

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD. INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC. ASSAY	S.M.D.I NUMBER
L-08	C. Campell CNS 2856	58-28-05	103-16-08	CU-3C	Mo	Py,Mg,Cp,Gf,Mo	cherty volcanic tuff	3	---	---	0624C
L-08	Gulf Minerals Permit No. 8	58-15-40	103-20-08	CU-4	---	Py,ra	sheared basic intrusive	2, 3	---	---	0625
L-08	Government of Sask. C.R. 619	58-19-01	102-26-08	CU-1A	Pb,Zn,Gf	Po,Gf,Py,Cp,As, Sf,Gn,Mt	meta-quartzite	1, 3	0.01 to 0.08% Cu (G)	0.18% Pb (G)	0631A
L-08	Government of Sask. C.R. 619	58-19-01	102-19-01	CU-1B	Pb,Zn,Gf	Po,Gf,Py,Cp,As, Sf,Gn,Mt	meta-quartzite	1, 3	0.01 to 0.08% Cu (G)	0.18% Pb (G)	0631B
L-09	Goldray Mines Permit No. 1	58-41-03	102-19-08	CU-1A	U,Th,Mo,Zn,Au, Ag,Gf	Py,Cp,Po,Gf,Mg	meta-sediments, granite	3	0.05 to 0.07% Cu (G)	0.48% MoS2 (G)	0632A
L-09	Goldray Mines Permit No. 1	58-41-03	102-19-08	CU-1B	U,Th,Mo,Zn,Au Ag,Gf	Py,Cp,Po,Gf,Mg	meta-sediments, granite	3	0.05 to 0.07% Cu (G)	0.48% MoS2 (G)	0632B
L-09	Goldray Mines Permit No. 1	58-41-03	102-19-08	CU-1C	U,Th,Mo,Zn,Au Ag,Gf	Py,Cp,Po,Gf,Mg	meta-sediments, granite	3	0.05 to 0.7% Cu (G)	0.48% MoS2 (g)	0632C
L-09	Kelvin Energy Ltd MPP 1852	58-43-50	102-27-06	CU-2	---	Mg,Po,Cp	diorite boulder	---	0.70% Cu (G)	---	1940
L-10	Roman Corporation Permit No. 1	58-35-49	102-33-50	CU-1A	Mo,Ag,Au,Zn	Gf,Py,Po,Cp,Mo, Mg	sheared Hbl. gneiss	2, 3	0.02 to 0.54% Cu (G)	0.03% Zn (G)	0633A
L-10	Roman Corporation Permit No. 1	58-35-49	102-33-50	CU-1B	Mo,Ag,Au,Zn	Gf,Py,Po,Cp,Mo, Mg	gneissic meta-sediments	2, 3	0.02 to 0.54% Cu (G)	0.32% Zn (g)	0633B
L-10	Roman Corporation Permit No. 1	58-35-49	102-33-50	CU-1C	Mo,Ag,Au,Zn	Gf,Py,Po,Cp,Mo, Mg	amphibolite gneiss	3	0.02 to 0.54% Cu (G)	0.32% Zn (g)	0633C
L-10	Roman Corporation Permit No. 1	58-35-49	102-33-50	CU-1D	Mo,Ag,Au,Zn	Gf,Py,Po,Cp,Mo, Mg	amphibolite gneiss	3	0.02 to 0.54% Cu (G)	0.32% Zn (g)	0633D
L-10	E. Kemp BEAR claims	58-31-32	102-33-13	CU-2	---	Py,Po,Cp,Gf	hornblende gneiss pegmatite	1,3	---	---	0634
L-10	Roman Corporation Permit No. 1	58-33-42	102-52-03	CU-3A	Zn	Gf,Py,Po,Cp,Fl	B-Q-graphite schist	3	0.01 to 0.1% Cu/ 0.7 to 1.7 m. (D)	0.26% Zn/ 0.7 to 1.7 m. (D)	0635A
L-10	Roman Corporation Permit No. 1	58-33-42	102-52-03	CU-3B	Zn	Gf,Po,Py,Cp,If	B-Q-graphite schist	3	---	---	0635B
L-10	Roman Corporation Permit No. 1	58-33-42	102-52-03	CU-3D	Zn	Gf,Po,Py,Cp,If	B-Q-graphite schist	3	---	---	0635D
L-10	Roman Corporation Permit No. 1	58-36-57	102-52-50	CU-4A	U,Th	Mg,Cp,Po,Py,U	amphibolitic Q-garnet gneiss	1, 3	0.03 to 0.19% Cu/ 0.2 to 1.6 m. (D)	0.01% Zn/ 0.2 to 1.6 m. (D)	0636A
L-10	Roman Corporation Permit No. 1	58-36-57	102-52-50	CU-4B	U,Th	Mg,Cp,Po,Py,U	pegmatite boulder	1, 3	---	0.04% U3O8 (G)	0636B
L-10	Roman Corporation Permit No. 1	58-36-57	102-52-50	CU-4C	U,Th	Mg,Cp,Po,Py,U	pegmatite boulder	1, 3	---	0.01% U3O8 (G)	0636C
L-10	Roman Corporation Permit No. 1	58-36-57	102-52-50	CU-4D	U,Th	Mg,Cp,Po,Py,U	amphibolitic Q-garnet gneiss	1, 3	---	---	0636D
L-10	Roman Corporation Permit No. 1	58-36-57	102-52-50	CU-4E	U,Th	Mg,Cp,Po,Py,U	amphibolitic Q-garnet gneiss	1, 3	---	---	0636E
L-16	Goldray Mines Permit No. 1	58-45-20	102-20-08	CU-1	Mo	Po,Cp,Mo	hornblende gneiss	3	---	---	0642
L-16	Goldray Mines Permit No. 1	58-49-25	102-15-55	CU-2	---	Po,Cp	hornblende gneiss	3	---	---	0643
L-16	Denison Mines Permit No. 1	58-58-51	102-05-15	CU-3A	Py,Mo,Gf	Py,Cp,Po,Lm,Mg Gf	meta-arkose	3	---	---	0644A
L-16	Denison Mines Permit No. 1	58-58-51	102-05-15	CU-3B	Py,Mo,Gf	Py,Cp,Po,Lm,Mg Gf	hornblende gneiss meta-arkose	3	---	---	0644B
L-16	Denison Mines Permit No. 1	58-47-25	102-16-50	CU-4A	U,Th	Po,Cp,U	hornblende gneiss	3	---	---	0645A
L-16	Denison Mines Permit No. 1	58-47-25	102-16-50	CU-4B	U,Th	Po,Cp,U	pegmatite boulder	3	---	0.02% U3O8 (G)	0645B
L-16	Denison Mines Permit No. 1	58-55-02	102-01-45	CU-5A	U,Th	Py,Cp,Po	sheared biotite actinolite bldr.	3	---	---	0646A
L-16	Denison Mines Permit No. 1	58-55-02	102-01-45	CU-5B	U,Th	Py,Cp,Po	actinolitic calc-silicate	3	---	0.02 to 0.12% U3O8 (G)	0646B
L-16	Denison Mines Permit No. 1	58-55-02	102-01-45	CU-5C	U,Th	Py,Cp,Po	calc-silicate boulders	3	---	Tr. to 1.35% REE (G)	0646C
L-16	Denison Mines Permit No. 1	58-55-02	102-01-45	CU-5D	U,Th	Py,Cp,Po	sheared biotite actinolite	3	---	---	0646D

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD. INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC. ASSAY	S.M.D.I NUMBER
L-16	Goldray Mines Permit No. 1	58-48-25	102-12-50	CU-6	---	Gf,Py,Cp,If,Po	biotite-cordierite gneiss	3	---	---	0647
L-16	Goldray Mines Permit No. 1	58-55-27	102-17-42	CU-7A	Py,Zn,Ag	Po,Mg	biotite gneiss, pegmatite	1, 3	0.01 to 0.10% Cu/ 5.2 m. (D)	---	0648A
L-16	Goldray Mines Permit No. 1	58-55-27	102-17-42	CU-7B	Py,Zn,Ag	Po,Mg	meta-arkose, hornblende gneiss	3	0.08 to 0.29% Cu (G)	0.5% Zn (G)	0648B
L-16	Goldray Mines Permit No. 1	58-55-27	102-17-42	CU-7C	Py,Zn,Ag	Po,Mg	meta-arkose, granite boulders	3	0.29% Cu (G)	0.5% Zn (G)	0648C
L-16	Goldray Mines Permit No. 1	58-55-27	102-17-42	CU-7D	Py,Zn,Ag	Po,Mg	meta-arkose, granite boulders	3	0.08 to 0.29% Cu (G)	0.5% Zn (G)	0648D
L-16	Denison Mines Ltd Permit No. 1	58-57-07	102-04-23	CU-8	Mo,Ni,U	Py,Po,Gf,Cp,Mo, ra,U	biotite gneiss, calc silicate gn.	1,3	0.04% Cu/ 1.5 m. (D)	0.02% Ni/ 1.5 m. (D)	0649

CU OCCURRENCES NTS AREA: 64-M

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD. INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC. ASSAY	S.M.D.I NUMBER
M-03	Gulf Minerals Permit No. 13	59-01-23	103-09-42	CU-1	Py	Cp,Bo,Cu,Py,Po	hornblende gneiss	3D	---	---	0652
M-04	Inexco Mining S-87660 to 87663	59-09-22	103-33-00	CU-1	Ni,Ag,Fe,Py	Cp,Py,Po,Mg	Q-B gneiss boulder	1, 3	15.6% Cu (G)	0.02% Ni (G)	0655
M-07	Gulf Minerals Permit No. 14	59-19-04	102-59-36	CU-1	---	Cu	hornblende gneiss	3	---	---	0658
M-09	Jupiter Exploration CBS 1086 to 1089	59-42-29	102-02-08	CU-1	Fe,Py,U,Zn	Cp,Py,Po,Mg,Ct	calc-silicate, sheared carbonate	3	2.0% Cu (G)	0.44% Zn (G)	0659
M-16	Ledford Lake area CBS 1100	59-51-32	102-08-52	CU-1	Ni	Py,Po,Cp	sheared greywacke	1,2,3	0.22% Cu/ 1.2 m. (D)	0.011 to 0.044% Ni/ 0.6 to 1.07 m. (D)	0662

CU OCCURRENCES NTS AREA: 73-I

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD. INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC. ASSAY	S.M.D.I NUMBER
I-15	Great Plains GP claims nos. 1 to 6	54-56-00	104-47-00	CU-1	Ag	Cp,Py,Mg,Ag	meta-sediments, meta-volcanics	2, 3	0.02% Cu (G)	---	0672
I-16	Radar Bay area	54-56-06	104-21-09	CU-1	---	Cp	feldspathic vein in hbl. tuff	2, 3	---	---	0675
I-16	Selco Exploration TED claims	54-57-33	104-15-14	CU-2	Zn,Ni	Py,Po,Cp,Sf	meta volcanic tuffs	1, 3	0.16% Cu/ 0.3 m. (D)	0.12% Zn/ 0.3 m. (D)	0676
I-16	Hardrock Resources JUL claims nos. 1 to 4	54-56-26	104-28-12	CU-3	---	Py,Po,Cp,Mg	andesitic meta-volcanics	3	---	---	0677
I-16	Selco Exploration BA claims nos 1 to 14	54-56-00	104-06-34	CU-4	Py,Au,Zn	Po,Py,Cp,Sf	meta-dacite, meta-rhyolite	1,3	0.38% Cu/ 1.0 m. (D)	0.02 oz Au/ 0.9 m. (D)	0678
I-16	Hardrock Resources JAN claims nos. 1 to 8	54-57-00	104-12-57	CU-5	Py	Py,Cp	andesitic meta-volcanics	3	---	---	0679
I-16	H.B.E.D. CBS 2790	54-56-25	104-05-10	CU-6	Py,Zn	Py,Po,Gf	B-H-Q-F gneiss	1, 3	0.1% Cu/ 0.4 m. (D)	0.3% Zn/ 0.4 m. (D)	0680
I-16	H.B.E.D. CBS 2184	54-56-45	104-00-40	CU-7	Py,Zn	Py,Po,Gf	B-Q-H gneiss	1, 3	0.1% Cu/ 1.5 m. (D)	0.3% Zn/ 1.5 m. (D)	0681

CU OCCURRENCES NTS AREA: 73-O

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD. INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC. ASSAY	S.M.D.I NUMBER
O-09	Pinehouse Lake, Santos Island area	55-36-06	106-23-28	CU-1	---	Cp	biotite gneiss	3	---	---	0692
O-14	Primeau Lake area SHIRL claims	55-54-08	107-13-31	CU-1	---	Cp	H-B-diopside gneiss	3	---	---	0703
O-16	Trans Canada Resources Permit No. 1	55-45-57	108-00-35	CU-1	U	U,Py,Cp	pegmatite, hornblende gneiss	3	0.45% Cu (G)	---	0711
O-16	Trans Canada Resources Permit No. 1	55-45-50	108-12-40	CU-2	Gf,Py,Zn	Py,Gf	biotite schist to gneiss, granite	3	0.31% Cu (G)	0.01% Zn (G)	0712

CU OCCURRENCES NTS AREA: 73-P

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD. INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC. ASSAY	S.M.D.I NUMBER
P-03	B. Blakney ML 5045, CBS 1331	55-14-00	105-05-36	CU-1	Ni,Ag,Ti,Fe	Cp,Py,Po,Mo,Bo, Mg	quartz stringers	3	1.0% Cu (G)	0.3% Ni (G)	0725
P-06	Great Plains CBS 510	55-16-50	105-08-20	CU-3	Au,Ni,Zn	Cp,Sf,Po,Py	sheared basic volcanics	1, 2	0.23% Cu (G)	Tr. Ni (G)	0734
P-06	Canadian Nickel ORE-RICH claims	55-15-20	105-12-49	CU-5	Ni	Cp,Py,Po	hornblende schist	3	0.25% Cu/ (D)	0.28% Ni/ 0.6 to 3.8 m. (D)	0736
P-06	Great Plains CBS 505 and 1374	55-22-35	105-19-04	CU-6	Ni	Py,Po,Cp	pegmatite, meta-sediments	1,3	0.04 to 0.12% Cu/ 1.2 to 4.6 m. (D)	0.09% Ni/ 1.2 to 4.6 m. (D)	0737
P-06	Great Plains WIZ claims nos. 1 to 18	55-15-43	105-06-10	CU-7	Au	Cp,Py,Po	felsic schist to gneiss	1, 3	0.83% Cu (G)	---	0738
P-06	Ore Bay area MOOSE-AQ-JANE claims	55-16-30	105-02-00	CU-8	---	Cp,Py	---	---	---	---	0739
P-06	Nemeiben Lake, Stewart Peninsula	55-25-55	105-25-25	CU-9	Py,Fe	Cp,Py,Po,Mg,Gf	amphibole-hornblende gneiss	3	---	---	0740
P-06	Nemeiben Lake area	55-23-29	105-22-06	CU-10	Py,Fe	Cp,Py,Po,Mg,Gf	hornblende gneiss gabbro	3	---	---	0741
P-06	Nemeiben Lake, North Bay	55-27-35	105-23-25	CU-11	Py,Fe	Cp,Py,Po,Mg,Gf	meta-sediments	3	---	---	0742
P-06	L. Lusk FLO claims	55-18-30	105-02-55	CU-12	Au,Co,Ag	Cp,Py,Po	meta-sediments	1, 3	0.1% Cu/ (D)	0.01 oz Au/ (D)	0743
P-06	Great Plains CBS 511, PCS-NI claims	55-17-00	105-10-00	CU-13	Au,Ag,Ni	Cp,Py,Po,Gf	amphibolite, pyroxenite	1, 3	0.43% Cu/ (D)	0.19% Zn/ (D)	0744
P-06	Dunlop Mines CBS 539, CBS 620	55-15-23	105-11-15	CU-14	Pb,Mo,Zn,Au	Cp,Py,Po,Mg,Gf	meta-sediments	2, 3	0.04% Cu/ (D)	0.01% Zn/ (D)	0745
P-07	Great Plains CBS 1397	55-24-20	104-51-00	CU-1	Py,Cp	Cp,Py,Po	dioritic gabbro, meta-sediments	2	---	---	0772
P-07	Freda Lake area Caribou Showing	55-23-38	104-48-58	CU-2	Au,Py	Py,Po,Gf	Q-F-B gneiss calc-silicate	2, 3	1.05% Cu (G)	0.02 oz Au (G)	0773
P-07	Rede Exploration CBS 613, S-89283 to 86	55-28-03	104-51-05	CU-3	Ag,Au	Cp,Bo,Cv	diorite porphyry	2	1.7% Cu (G)	0.22 oz Ag (G)	0774
P-07	J.J. Studer BJJ-KUP claims	55-27-00	104-54-15	CU-4	Py,Au	Cp,Au,Py	hornblende gneiss	1, 3	---	---	0775
P-07	I.M.C. Zita Showing	55-27-15	104-51-30	CU-5	Pb,Zn,U	Cp,Py	felsic gneiss	2, 3	---	---	0776
P-07	Rio Canadian AB claims	55-19-20	104-50-50	CU-6	Au,Ag	Cp,Py,Po,Gf	hornblende gneiss	1, 3	0.14% Cu/ 1.8 m. (CH)	0.05 oz Au/ 1.8 m (CH)	0777
P-07	G. Glass CBS 1051	55-26-05	104-55-14	CU-7	Ni,Ag,Au	Py,Po,Cp	sheared B-Q-F gneiss	2, 3	1.15% Cu (G)	0.05% Ni (G)	0778
P-07	J. Studer PETE claims	55-27-10	104-53-09	CU-8	Py	Cp,Py	felsic gneiss	2, 3	---	---	0779
P-07	Great Plains GIC-ANNE-PAT claims	55-29-10	104-55-05	CU-10	Py	Cp,Py,Po	felsic gneiss	2, 3	---	---	0781
P-07	Great Plains CBS 1398 and 1399	55-28-30	104-56-00	CU-11	Py	Cp,Py,Po,Mg	Q-H-B-F gneiss	3	---	---	0782
P-07	Rio Tinto Otter Lake area	55-29-24	104-40-00	CU-12	Py	Cp,Po,Py	meta-sediments	3	0.18% Cu (G)	---	0783
P-07	Rio Canex PAT claim no 1	55-20-40	104-50-55	CU-13	Au,Ag	Cp,Py,Po	carbonate filled shear -hbl gneiss	2, 3	2.04% Cu (G)	0.89 oz Au (G)	0784
P-07	Kaiser Development PCI-MINTO claims	55-18-35	104-55-40	CU-14	Au	Cp,Py	H-B gneiss, amphibolite	3	0.12% Cu/ (D)	0.01 oz Au/ (D)	0785
P-07	Anglo Rouyn Zones ML 5098	55-18-14	104-57-23	CU-16	Au	Py,Po,Cp,As	felsic gneiss	1, 2, 3	---	0.01 oz Au (G)	0787
P-07	Waden Syndicate ML 5134	55-19-43	104-59-07	CU-17	Au,Ni	Py,Po,Cp,Ci	granite gneiss	1, 3	0.4% Cu/ (CP)	0.25% Ni/ (CP)	0788
P-09	Knight Lake area	55-39-48	104-07-03	CU-1	Au	Po,Cp	quartz-diopside gneiss	1, 3	0.13% Cu (G)	0.02 oz Au (G)	0887
P-09	Noranda Exploration CBS 788	55-37-15	104-05-30	CU-2A	Py	Py,Po,Cp	B-Q-F-sericite gneiss	3	0.18% Cu (G)	Tr. Au (G)	0888A

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC. ASSAY	S.N.D.I NUMBER
P-09	Noranda Exploration CBS 768	55-37-15	104-05-30	CU-28	Py	Cp,Py	calc-silicate gneiss	1, 3	---	---	00000
P-09	Great Plains PROP claim no. 1	55-43-08	104-10-04	CU-3	Ni,Au	Py,Po,Cp,Bo,Mg	hornblende granulite	3	0.22% Cu (G)	0.01% Ni (G)	0809
P-10	Montego Mines CBS 1404	55-40-28	104-44-10	CU-2	---	Cp	basic volcanics, meta-sediments	3	---	---	0813
P-10	Green Point Mines CBS 583	55-43-13	104-53-52	CU-3	Py,Po	Cp,Py,Po	volcanics meta-sediments	3	0.07% Cu/ (D)	0.15% Ni/ (D)	0814
P-10	Pre-Cam Exploration GRAB claims nos. 1 to 21	55-44-06	104-58-24	CU-4	Zn	Py,Po,Cp,Sf	B-Q gneiss, quartzite	3	---	---	0815
P-10	Rajah Mines KAP claims	55-32-56	104-52-55	CU-5	---	Ml	hornblende gneiss andesite	3	---	---	0816
P-10	Rajah Mines CBS 1424	55-36-10	104-52-25	CU-6	---	Cp,Po,Mg	andesite	3	---	---	0817
P-10	Wolk Lake area	55-30-25	104-54-50	CU-7	---	Cp,Po,Mg	andesite	3	---	---	0818
P-10	Rajah Mines, MAW Showing CBS 622	55-34-35	104-58-37	CU-8	Ni,Co	Py,Po,Cp,Pd,Mg	gabbro	1	0.82% Cu (G)	0.21% Ni (G)	0819
P-10	Rajah Mines CBS 1614	55-31-45	104-54-05	CU-9	---	Cu,Ml	amygdoidal andesite	3	---	---	0820
P-10	Rattler Creek area	55-38-35	104-31-05	CU-10	Au,Ag	Po,Cp,Py	calc-silicate gneiss	3	---	---	0821
P-10	Don Fisher PW claims	55-32-58	104-34-56	CU-11	Au,Ag	Py,Po,Cp	meta-sediment	2, 3	---	0.12 oz Ag (G)	0822
P-10	G. Findlay Copper-Bridgeman Lakes	55-33-17	104-41-35	CU-12	Au,Ag,Ni,Mo	Cp	calc-silicate gneiss	3	0.36% Cu (G)	0.05 oz Au (G)	L 23
P-10	Noranda Exploration CBS 467, 616 claims	55-32-05	104-47-47	CU-13	---	Py,Po,Cp,Au,Sf	calc-silicate gneiss	3	0.19% Cu 0.3 m (D)	---	0824
P-10	Rio Tinto Wolf Lake area	55-30-10	104-41-25	CU-14	---	Py,Po,Cp	quartz-plag.-biotite gneiss	1	0.18% Cu (G)	---	0825
P-10	Value Line Minerals SUM claims nos 1 to 11	55-40-39	104-56-10	CU-15	Ni,Au	Po,Pd,Cp,Py	gabbro, granite	3	0.38% Cu (G)	0.12 oz Au (G)	0826
P-10	Value Line Minerals HAY-CHALCO claims	55-40-30	104-50-58	CU-16	Ni	Py,Cp	granite, diorite	3	0.15% Cu (G)	0.09% Ni (G)	0827
P-10	Studer Mines CBS 1650	55-41-50	104-47-00	CU-17	Ni,Co,Ag,Au	Cp,Py,Po,Bo,Mg	basaltic diorite, meta-volcanics	1, 2	0.54% Cu (G)	0.12% Co (G)	0828
P-10	Hayman Lake area	55-42-08	104-51-47	CU-19	Po	Cp,Po	B-Q-F gneiss	3	---	---	0830
P-10	Hayman Lake area	55-42-29	104-51-14	CU-20	Po	Cp,Po	B-Q-F gneiss	3	---	---	0831
P-10	Bellows Lake area	55-43-06	104-54-19	CU-21	Py	Cp,Py	contact: granite-hornblende gneiss	1, 3	---	---	0832
P-10	Silver Chief Minerals CBS 691	55-44-50	104-55-00	CU-23	Py,Po,Au,Ni	Cp,Po,Py	contact: granite-hornblende gneiss	3	0.02% Cu/ (D)	0.05 oz Au/ 1.2 m (D)	0834
P-11	Canadian Nickel CBS 604 and 695	55-44-20	105-01-30	CU-2	Ni	Py,Po,Gf	biotite schist, skarn, quartzite	3	0.59% Cu/ (D)	0.04% Ni/ (D)	0850
P-13	International Nickel BUD claims nos. 3 to 7	55-51-00	105-36-45	CU-1	Ni,Py,Po	Py,Po,Gf	biotite migmatite	3	0.13% Cu/ 1.8 m (D)	0.07% Ni/ 1.8 m (D)	0862
P-14	T.v.I. Mining CBS 1778	55-57-04	105-20-15	CU-1	Ni	Px,Cp,Py,Po,Bo	pyroxenite	1, 3	1.0% Cu (G)	0.5% Ni (G)	0866
P-14	C. Olsen KELLY-CO claims	55-57-30	105-14-45	CU-2	Ni	Po,Cp	pyroxenite	3	0.19% Cu (G)	0.17% Ni (G)	0867
P-14	Canadian Nickel BELLA claims 1 to 13	55-55-05	105-26-15	CU-3	Ni	Po,Cp,Py,Gf	quartzite, meta-sediments	1, 3	0.01 to 0.03% Cu/ (D)	0.01 to 0.03% Ni/ (D)	0868
P-14	International Nickel KIM claims	55-45-10	105-05-25	CU-4	Ni,U	Py,Po,Gf,Bi,U	granite gneiss	1, 3	0.01 to 0.07% Cu/ 0.6 to 1.5 m. (D)	0.02 to 0.1% Ni/ 0.6 to 1.5 m. (D)	0869
P-14	Canadian Nickel TIM claims	54-49-11	105-17-10	CU-5	Ni	Py,Po	biotite gneiss	3	0.01 to 0.03% Cu/ 1.4 to 3.0 m. (D)	0.02 to 0.04% Ni/ 1.4 to 3.0 m. (D)	0870
P-15	B. Richards PRE claims	55-47-10	104-43-12	CU-1	---	Cp,Py	diorite	3	---	---	0872

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD. INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC. ASSAY	S.M.D.I NUMBER
P-15	Iroquois Mines KAZAN claims	55-49-00	104-34-50	CU-2A	---	Cp,Py,Po,Mg	sheared volcanics	1, 3	---	---	0873A
P-15	Iroquois Mines KAZAN claims	55-49-00	104-34-50	CU-2B	Fe,Po	Cp,Py,Po,Mg	basic volcanics	3	---	---	0873B
P-15	Great Plains CBS 526	55-49-00	104-43-28	CU-5	Mo,Au,Ag,Zn,Ni	Cp,Mo,Ep,Py,Po, Gf	calc-silicate	3	0.02 to 0.20% Cu/ (D)	0.25% Zn/ (D)	0876
P-15	Taylor Mines CBS 744, JO claim	55-45-31	104-45-55	CU-6	---	Cp,Py,Po	silicified volcanics	3	---	---	0877
P-15	Esmay Lake area QUARTZ claim no. 19	55-45-35	104-43-57	CU-7	---	Py,Po,Cp	sheared andesite	2	1.88% Cu/ 4.2 m. (D)	---	0878
P-15	Rio Tinto CBS 663	55-47-30	104-49-15	CU-8	Mo	Py,Po,Gf,Cp,Mo	granulite, gabbro	1, 3	0.7% Cu (G)	3.9% Ni (G)	0879
P-16	Don Fisher Settee Lake area	55-51-38	104-08-09	CU-1	Zn	Gt,Po,Py,Cp	pegmatite, granite	3	0.98% Cu (G)	---	0892
P-16	Roundish Lake area	55-56-05	104-23-00	CU-2	Ni,Au,Ag	Py,Po,Cp,Mg,Gf	gabbro	3	1.0% Cu (G)	0.2% Ni (G)	0893
P-16	McLennan Lake area	55-55-17	104-19-19	CU-3	Zn	Cp,Sf	meta-volcanics	3	---	---	0894
P-16	E. Partridge KAHR claim no. 25	55-58-50	104-15-20	CU-4	Au	Cu	meta-andesite	3	0.1% Cu/ 1.7 m. (D)	Tr. Au/ 1.7 m. (D)	0895

CU OCCURRENCES NTS AREA: 74-A

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD. INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC. ASSAY	S.M.D.I NUMBER
A-01	Lytton Minerals Augustus Withdrawl	56-07-20	104-11-25	CU-1	Py,Ni	Po,Cp,Py	ultrabasics	3	0.13% Cu (G)	---	0915
A-02	D.M. Macdonald CBS 1321	56-00-55	104-31-10	CU-1	Ni,Py	Py,Po,Cp	meta-gabbro meta-pyroxenite	3	0.49% Cu (G)	0.06% Ni (G)	0926
A-03	Dunlop Lake area BANNER claim no. 1	56-03-55	105-12-25	CU-1	---	Bo	sheared meta-sediment	3	---	---	0927
A-04	Husky Oil Tosi Showing	56-12-05	105-43-00	CU-1	Py	Py,Cp,Bo,Cl	sheared biotite gneiss	2, 3	0.50% Cu (G)	---	0930
A-04	MacRae Lake area	56-06-02	105-47-20	CU-2	Py,U	Py,Cp,Po,U	pegmatite	3	---	---	0931
A-06	Great Plains Permit No. 1	56-17-40	105-29-30	CU-1A	Pb,Zn,U,Mo	Cp	meta-arkose	3	---	---	0948A
A-06	Great Plains Permit No. 1	56-19-12	105-26-23	CU-1B	Pb,Zn,U,Mo	Cp	sheared meta-arkose	3	---	---	0948B
A-06	Fannon Lake area CBS 3498	56-22-30	105-23-00	CU-2A	Mo,U,Ag,Au	Cl,Cp,Py,Po,Mo, Fl	meta-sediments	1, 3	---	---	0949A
A-06	Fannon Lake area CBS 3498	56-22-30	105-23-00	CU-2B	Mo,U,Ag,Au	Cl,Cp,Py,Po,Mo, Fl	meta-arkose, quartzite	1, 2, 3	0.6% Cu (G)	0.1% MoS2 (G)	0949B
A-07	Knox Reservations ML 4	56-22-10	104-50-12	CU-1	Pb,Zn,Ni	Py,Po	H-B-Q-F granulite	1, 3	0.50% Cu (G)	0.09% Ni (G)	0954
A-07	Sherritt Gordon CBS 622	56-24-24	104-46-48	CU-2A	Py,Ag,Zn,Ni,Fe, Co	Py,Po,Cp	meta-sediment	1, 3	0.19% Cu/ (D)	0.4% Zn/ (D)	0955A
A-07	Sherritt Gordon CBS 622	56-25-29	104-52-42	CU-2B	Py,Ag,Zn,Ni,Fe, Co	Py,Po,Cp	Q-B-F gneiss	1, 3	0.08% Cu/ (D)	0.08% Zn/ (D)	0955B
A-07	Sherritt Gordon CBS 622	56-27-22	104-55-31	CU-2C	Py,Ag,Zn,Ni,Fe, Co	Py,Po,Cp	migmatite	3	---	---	0955C
A-07	Sherritt Gordon Rottenstone Lake area	56-21-48	104-52-30	CU-3	Py,Ni,Ag,Zn,Fe	Py,Po,Cp,Gf	Q-B-F gneiss, pegmatite	3	0.13% Cu/ (D)	0.11% Ni/ (D)	0956
A-07	Sherritt Gordon Deighton Lake area	56-23-25	104-57-40	CU-4	Ni,Ag,Zn,Co,Fe, Py	Po,Py,Bo	Q-B gneiss	1, 3	0.11% Cu/ (D)	0.38 oz Ag/ (D)	0957
A-08	Studer Mines NICO claims	56-21-13	104-04-05	CU-1	Py,Au,Ni	Po,Cp,Py,Gf	gabbro, pyroxenite	1, 3	---	0.05% Ni/ (D)	0962
A-09	Scurry Rainbow Deception Lake area	56-37-58	104-12-28	CU-1A	Py,Gf,Ni,Ag	Po,Mg,Py,Cp,Gf	biotite gneiss, pegmatite	1, 3	0.06% Cu (G)	Tr. Ni (G)	0968A
A-09	Scurry Rainbow Deception Lake area	56-37-58	104-12-28	CU-1B	Py,Gf,Ni,Ag	Po,Mg,Py,Cp,Gf	hornblende gneiss calc-silicate	1, 3	0.06% Cu (G)	---	0968B

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD. INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC. ASSAY	S.M.D.I NUMBER
A-11	D. Partridge CBS 3573	56-33-29	105-11-58	CU-1	Co,Au,Ag,U	Py,Po,Cp,As	quartzite in sheared arkose	3	0.25% Cu (G)	1.22% Co (G)	0971
A-11	Inexco Permit No. 1	56-37-50	105-25-20	CU-2	---	Py,Po,Mg,Cp	biotite granulite garnet gneiss	3	0.52% Cu G)	---	0972
A-12	Great Plains	56-40-05	105-33-12	CU-1	---	Cr,Ni	meta-arkose boulders	3	---	---	0989
A-14	Great Plains E. Burbidge Lake area	56-45-48	105-00-10	CU-1	Py	Py,Po,Cp	argillaceous quartzite	1, 2, 3	---	---	0996
A-14	Great Plains CBS 3512	56-51-12	105-00-28	CU-2	---	Cr,Cp,Py	meta-arkose boulders	3	---	---	0997
A-14	Zed Lake area	56-56-13	105-07-09	CU-3	---	Ni,Az	meta-arkose	3	---	---	0998
A-15	B. Richards ZAP claims	56-50-06	104-54-05	CU-5	Py,Gf,Po	Py,Cp,Gf,Po	fractured meta-arkose	2, 3	---	---	1020
A-15	Great Plains CBS 643	56-52-29	104-51-19	CU-6	Mo,Zn,Ni,Py,Po, Gf,As	Py,Po,Gf,Cu,Pb, Zn,Ni,As	quartzite boulder Q-B schist	3	0.08% Cu (G)	0.02% Zn (G)	1021
A-15	Great Plains Howe Lake area	56-45-55	105-59-43	CU-7	Py,Po,Zn	Py,Po,Cp,Sf	argillaceous qte Q-B gneiss	2	---	---	1022

CU OCCURRENCES NTS AREA: 74-B

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD. INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC. ASSAY	S.M.D.I NUMBER
B-02	Flinthead Lake area	56-09-48	106-53-20	CU-1A	---	Cp	calc-silicate gneiss to marble	3	---	---	1024A
B-02	Flinthead Lake area	56-09-48	106-53-20	CU-1B	---	Cp	calc-silicate gneiss to marble	3	---	---	1024B
B-06	Sunlite Oil CBS 1935	56-17-41	107-22-06	CU-1	Pb,Zn,Ni,Py,Cp, Po	Py,Po,Cp	quartzite, pegmatite	3	0.24% Cu/ 1.5 m. (CH)	0.16% Zn/ 1.5 m. (CH)	1044
B-06	Rio Canex CBS 1872	56-18-02	107-07-47	CU-2	Au,Ag,Zn,Ni	Cp,Cu,Fe	iron formation, quartzite	3	0.07% Cu (G)	0.03 oz Au (G)	1045
B-06	Sunlite Oil Permit No. 2	56-19-05	107-11-42	CU-3	Py	Mg,Py,Po,Cp	meta-sediments, meta-volcanics	1, 3	---	---	1046
B-06	Sunlite Oil Permit No. 2	56-21-55	107-12-12	CU-4	Po,Mg,Os,Cp	Py,Po,Mg,Cp,Os	hornblendite, meta-sediments	1, 3	---	---	1047
B-06	Sunlite Oil CBS 1874	56-17-28	107-17-38	CU-5	Ni,Zn,Mo,U,Au	Cp,Po,Mg,U,As	iron formation, peridotite	1, 3	0.25% Cu (G)	0.14% Ni (G)	1048
B-07	E. Partridge Peak Lake area	56-15-12	106-59-50	CU-1	---	Py,Po	felsic gneiss	---	---	---	1058
B-09	Dynamic Petroleum Permit No. 2	56-42-17	106-12-04	CU-1	Py,Gf,Ni,Cp	Py,Gf,Cp	meta-sediments	1, 3	0.13% Cu (G)	0.10% Zn (G)	1065
B-13	Ithingo Lake area	56-49-46	107-32-10	CU-1	Py,As,Mg,Po,Sf, Au	As,Py,Po,Sf,Au	psammitic gneiss	2Q, 3	---	---	1080

CU OCCURRENCES NTS AREA: 74-F

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD. INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC. ASSAY	S.M.D.I NUMBER
F-01	Northwood Mining Permit No. 4	57-02-50	108-09-50	CU-1	Zn,Ni,Au	Po,Cp,Sf,Mo,Gn	sheared chloritic -quartzitic gn.	1, 3	0.26% Cu (G)	0.67% Zn (G)	1099

CU OCCURRENCES NTS AREA: 74-G

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD. INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC. ASSAY	S.M.D.I NUMBER
G-05	International Nuclear Permit No. 2	57-24-40	107-57-23	CU-2	---	Py,Po,Cp	gossan	3	---	---	1110

CU OCCURRENCES NTS AREA: 74-H

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD. INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC ASSAY	S.M.D.I NUMBER
H-02	Fraser Lake, west shore	57-02-50	124-58-20	CU-1	Mo	Cp,Mo,Ml	pegmatite, meta-arkose	1	---	---	1122
H-07	Numac Oil Permit No. 6	57-15-20	124-52-22	CU-1	---	Cp	meta-arkose	3	0.08% Cu (G)	---	1137

CU OCCURRENCES NTS AREA: 74-N

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD. INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC ASSAY	S.M.D.I NUMBER
N-07	Matrix Exploration CBS 360	59-24-50	128-54-00	CU-1	Ag	Cp,Bo	chlorite schist	3	0.80% Cu (G)	0.10 oz Ag (G)	1213
N-09	Eldorado Nuclear ML 5148	59-38-30	128-20-35	CU-1	Pb,Zn	Ml,Az,Py,Cp,Gn, Sf	shear zone in mylonitic granite	2	1.4% Cu (G)	---	1282
N-10	Consolidated Skeena CBS 1155	59-40-05	128-58-50	CU-2	Ag	Cp	paragneiss	2, 3	1.0% Cu (G)	---	1349
N-10	Nitracell Canada CBS 1199	59-44-05	129-00-00	CU-3	---	Ml,Cp	feldspathic gneiss	2	1.2% Cu (G)	---	1350
N-10	Independence Mining Suprise Creek Showing	59-41-55	128-53-15	CU-4	U,Ag	Ch,Hm,U	mineralized shear in Q-F gneiss	2	5.4% Cu (G)	1.4% U (G)	1351
N-10	Scope Development Pete Showing	59-39-50	128-48-25	CU-5	Ag,Pb	Cp,Ml,Hm	sheared migmatite to paragneiss	2, 3	1.92% Cu (G)	0.48 oz Ag (G)	1352
N-10	Norex Uranium Mines St. Louis East Showing	59-39-55	128-45-25	CU-8	Ag	Cp	paragneiss	---	0.53% Cu (G)	0.08oz Ag (G)	1355
N-10	Jomok Ltd CBS 378	59-40-40	128-51-20	CU-9	Ag	Cp,Bo,Ml,Az,Qt, Ch	garnet-chlorite biotite gneiss	2, 3	2.3% Cu (G)	---	1356
N-11	E.W. Dayman BILL-DAY claims	59-37-40	129-08-51	CU-1	---	Cp,Bo,Ml,Hm	quartzite	3	---	---	1489
N-11	Mokta Canada CBS 333	59-43-38	129-07-22	CU-3	---	Cp	amphibolitic gneiss	3	0.81% Cu (G)	---	1491
N-11	Cultus Exploration CBS 1169	59-39-30	129-00-00	CU-4	---	Ml,Az,Py,Bo,Hm	mineralized shear in conglomerate	3	0.33% Cu (S)	---	1492
N-11	North America Rare Metals CBS 2286	59-39-52	129-00-45	CU-7	---	Cp	sheared paragneiss	2Q, 3	4.53% Cu (S)	---	1495
N-11	S M D C CBS 4382	59-39-17	129-00-45	CU-14	---	Cp	mineralized qtz. veins in meta-sed	2Q, 3	1.43% Cu (G)	---	1502
N-11	Mokta Canada CBS 382	59-35-35	129-08-50	CU-15	Au	Cp	Q-F gneiss	3	4.58% Cu (G)	2.1 oz Au (G)	1503
N-11	Hearne Lake area	59-42-00	129-12-00	CU-16	U	Cp,U	sheared meta-sediments	2	---	---	1504
N-11	White Lake area	59-38-50	129-00-05	CU-17A	---	Ml,Bo,Cp,Py	mineralized qtz. veins	2Q	---	---	1505A
N-11	White Lake area	59-36-10	129-00-05	CU-17B	---	Ml,Bo,Cp,Py	mineralized qtz. veins	2Q	---	---	1505B
N-11	White Lake area	59-35-45	129-00-05	CU-17C	---	Ml,Bo,Cp,Py	mineralized qtz. veins	2Q	---	---	1505C
N-12	Asamera Oil Permit No. 1	59-42-00	129-49-00	CU-1	Zn	Po,Cp,Py,Mo,Sf	brecciated meta-sediments	2Q, 3	---	---	1517
N-12	Uranerz Mining CBS 5524	59-34-51	129-33-58	CU-2	---	Cd	B-Q-F gneiss	3	0.80% Cu (G)	---	2123

CU OCCURRENCES NTS AREA: 74-O

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD. INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC ASSAY	S.M.D.I NUMBER
O-08	Inexco Permit No. 6	59-21-55	136-05-00	CU-1	Ni	Hm,Po,Ln,Go	garnet gneiss	3	0.08% Cu (G)	0.04% Ni (G)	1582
O-13	Nistikkatch Lake area	59-52-08	137-52-46	CU-1	---	Py,Cp	mineralized quartz vein	3Q	---	---	1609

CU OCCURRENCES NTS AREA: 74-P

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD. INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC. ASSAY	S.M.D.I NUMBER
P-05	Stony Rapids area ROCK claims	59-15-55	105-52-48	CU-2	Fe	Cp	iron formation	1, 3	---	---	1624
P-05	Stony Rapids area RIV-IAN claims	59-15-50	105-49-10	CU-3	Ni,Fe,Os	Hy,Os	pyroxenite	3	---	---	1625
P-05	Rosinski Lake area	59-19-30	105-45-50	CU-4	Fe	Cp,Py	norite	3	---	---	1626
P-06	Woolhether Lake area	59-22-35	105-16-20	CU-2	Ni	Po,Py,Cp,Qz	mineralized quartz veins	1, 20	---	---	1634
P-06	Woolhether Lake area	59-20-45	105-24-50	CU-3	---	Py,Po,Cp	sheared amphibolite	3	---	---	1635
P-09	Jupiter Exploration Permit No 1	59-32-05	104-07-30	CU-1	Zn,Pb,Ni,Gf	U,Gt,Gf	biotite-garnet gneiss	3	---	---	1673
P-10	Gulf Minerals Permit No 18	59-41-23	104-56-57	CU-1	Zn,Py	Py,Cp	quartz veins	20	---	---	1675
P-10	Gulf Minerals Permit No 18	59-40-12	104-56-29	CU-2	Py	Py,Cp	meta-diorite	3	0.05% Cu (G)	---	1734
P-10	Gulf Minerals Permit No 18	59-40-25	104-55-41	CU-3	Py,Zn	Py,Cp	quartz veins	3	0.09% Cu (G)	0.01% Ni (G)	1735
P-10	Gulf Minerals Permit No 18	59-38-46	104-56-27	CU-4	Py,Zn	Py,Cp	quartz veins	3	0.06% Cu (G)	0.005% Zn (G)	1736
P-10	Gulf Minerals Permit No 18	59-30-04	104-55-18	CU-5	Py	Py,Cp	aplite dyke	3	0.025% Cu (G)	---	1737
P-10	Gulf Minerals Permit No 18	59-30-00	104-47-26	CU-6	Py,Zn	Cp,Py,Bi	calcareous meta-sediment	1	0.03% Cu (G)	---	1738
P-11	FAITH claims	59-36-15	105-16-20	CU-1	Ni	Po,Cp,Hy	---	2, 3	0.32% Cu (G)	0.25% Ni (G)	1676

ASSOCIATED CU OCCURRENCES NTS AREA: 63-K

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD. INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC. ASSAY	S.M.D.I NUMBER
K-05	Consolidated Morrison CBS 3055	54-15-43	101-06-19	PY-4	Cu,Zn,Ni,Ag,Gf	Py,Gf,Cp,Sf	graphitic earthy pyrite	1, 3	0.03% Cu/ (D)	0.03% Ni/ (D)	1787
K-05	Consolidated Morrison CBS 3055	54-16-14	101-57-41	PY-5	Cu,Zn,Ni,Ag,Gf	Py,Gf,Cp,Sf	graphitic earthy pyrite	1, 3	0.08% Cu/ (D)	0.02% Ni/ (D)	1788
K-05	Consolidated Morrison CBS 3055	54-16-22	101-59-02	PY-6	Cu,Ag,Gf	Py,Mn,Gf	graphitic earthy pyrite	1, 3	0.03% Cu/ (D)	0.12 oz Ag/ (D)	1789
K-05	Consolidated Morrison Permit No. 1	54-17-38	101-58-40	PY-7	Cu,Zn,Ni,Pb,Ag	Py,Gf	meta-sediments graphite	3	0.04% Cu/ (D)	0.03% Zn/ (D)	1796
K-05	Consolidated Morrison Permit No. 1	54-18-00	101-57-56	PY-8	Cu,Ni,Ag	Py,Gf	meta-sediments, graphite	3	0.10% Cu/ (D)	0.03% Ni/ (D)	1797
K-12	Newcor Mine ML 5176	54-43-34	101-54-56	AU-1	As,Ag,Zn,Cu	As,Sf,Py,Cp	quartz lenses in chlorite schist	1	0.40% Cu (D)	0.63 oz Au (D)	0005
K-12	BINGO-DOT claims	54-43-22	101-56-22	AU-3	Au	Py,Po,Cp	sheared andesite	1, 3Q	0.12% Cu/ (D)	0.01 oz Au/ (D)	0007
K-12	Potmore Lake area	54-42-47	101-58-20	AU-4	Au,Ag	Py,Cp,Bo	sheared quartz veins in diorite	3Q	---	0.05 oz Au/ 1.0 m. (I)	0008
K-12	Phantom Lake Mine	54-40-57	101-52-53	AU-5	Au,Ag,W	Py,As,Cp,Au,Sh	sheared qtz. vein in granodiorite	2G	3.4% Cu (G)	2.9 oz Au/ (D)	0009
K-12	Douglas Lake area Unity Showing	54-43-34	101-54-09	AU-9	Au	Py,Po,Cp	mineralized shear andesite, dacite	3Q	---	---	0013
K-12	Douglas Lake area Cor Showing	54-43-48	101-54-42	AU-10	Au,As,Py	As,Py,Cp,Au,Tl, Qz	sheared chlorite carbonate schist	1, 3Q	0.3% Cu/ (D)	0.35 oz Au/ (D)	0014
K-12	Phantom Lake area CBS 7F4	54-42-20	101-52-12	AU-14	Au,Ag	Au,Ag,Py	granite	3	---	0.06 oz Au (G)	0018
K-12	Wekach Lake area	54-42-15	101-56-40	AU-17	Au	Au,Cp	sheared basic volcanics	2D	---	---	0021
K-12	Granges Exploration CBS 3071	54-37-49	101-57-11	AU-18	Au,Ag,Zn	Py,Gf,Sp	fractured serpentinite	2	0.01% Cu/ 1.5 m. (D)	0.05 oz Au/ 1.5 m. (D)	1783
K-12	H.B.E.D. Braunstein Option	54-33-09	101-51-35	FE-1	Fe	Py,If	graphite schist	1	0.12% Cu/ 1.3 m. (D)	---	0044
K-12	Phantom Lake area CBS 7E6	54-41-41	101-53-02	W-3	W,Au,Ag,Mo	Py,Cp,As,Sh,Mo	mineralized shear in granite	3	---	0.13% W (G)	0054
K-12	Phantom Lake area	54-42-54	101-51-33	W-4	W,Mo	Py,Po,Cp,Mo	basic volcanics, meta-diorite	2D	---	---	0055
K-12	I M C KAR claims	54-42-20	101-51-22	W-5	W,Au,Ag,Mo	Py,Po,Sh,Mo,Au	sheared chlorite carbonate schist	3D	0.48% Cu (G)	0.06 oz Au (G)	0056
K-13	H.B.E.D. CBS 5131 and 2159	54-48-00	101-55-00	AU-1	Au,Ag,Cu	Py	diorite, gabbro	1, 3	0.25% Cu/ (D)	3.98 oz Ag/ (D)	0062
K-13	H.B.E.D. BEAVER claim no. 32	54-47-05	101-54-40	AU-2	Au,Ag,Zn	Py,Po	quartz porphyry, dacite, andesite	3	0.42% Cu/ (D)	0.50 oz Au/ (D)	0063

ASSOCIATED CU OCCURRENCES NTS AREA: 63-L

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD. INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC. ASSAY	S.M.D.I NUMBER
L-08	Consolidated Morrison Permit No. 1	54-19-21	102-05-00	PY-3	Gf,Ni,Ag,As	Py,Gf,Cp,Sf	graphite, earthy pyrite	1	0.04% Cu/ 0.9 m. (D)	0.02% Ni/ 0.9 m. (D)	1790
L-08	Consolidated Morrison Permit No. 1	54-18-24	102-04-53	PY-4	Gf,Ni,Ag	Gf,Py	intermediate volcanics	1	0.03% Cu/ (D)	0.03% Zn/ (D)	1791
L-08	Consolidated Morrison Permit No. 1	54-18-24	102-04-47	PY-5	Gf,Ni,Ag,As	Py,Po,Cp,Gf,Sf	dacite, andesite	1	0.02% Cu/ 0.8 m. (D)	0.12 oz Ag/ 0.8 m. (D)	1792
L-08	Consolidated Morrison Permit No. 1	54-17-59	102-04-28	PY-6	Gf,Py,Ni,Ag	Gf,Py,Po	graphite, earthy pyrite	1, 3	0.03% Cu/ (D)	0.14 oz Ag/ (D)	1793
L-09	Gull Island-Amisk Lake BON claim no. 3	54-42-20	102-15-55	AG-2	Au,Ag,Zn	Py,Sf,Gn,Cp	sheared basic tuff	2	---	1.8 oz Ag/ (D)	0081
L-09	Amisk Lake area HOOOOO claim no. 31	54-42-20	102-08-13	AG-4	Au,Ag	Py,Cp	sheared quartz in graphite schist	2, 3Q	0.07% Cu/ 2.5 m. (D)	2.9 oz Ag/ 3.0 m. (D)	0083
L-09	Prince Albert Deposit	54-43-15	102-16-10	AU-1	Au,Ag,Mo,Pb,As, Zn	Au,Py,As,Cp,Gn, Sf,Mo	quartz vein	1Q, 3Q	1.25% Cu (D)	0.11 oz Au (D)	0086

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD. INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC. ASSAY	S.M.D.I NUMBER
L-09	Hosher Lake area SLIP claims	54-40-20	102-03-40	AU-2	Au,W	Qz,Py,Cp,Sh	sheared qtz. vein in andesite	2, 3Q	---	---	0087
L-09	Amisk Lake area VICTORY claims	54-42-32	102-16-51	AU-5	Au,Ag,Zn,Pb	As,Py,Po,Cp,Sf, Gn	sheared greywacke	2	---	0.28 oz Au (G)	0090
L-09	Amisk Lake area DUPLEX claims	54-43-55	102-15-30	AU-6	Au	Py,As,Tl,Cp	carbonatized shear zone	2Q	---	0.20 oz Au/ 0.9 m. (D)	0091
L-09	Amisk Lake area BUD claims	54-39-15	102-19-55	AU-10	Au	Py,Cp,Au	quartz lenses	3Q, 3	---	---	0095
L-09	Tarrington Island area BEAVER claim group	54-41-38	102-16-15	AU-13	Au,Ag	Py,Mg,Au,Cp,Sf	sheared diorite porphyry	2	---	0.84 oz Au/ 1.1 m. (D)	0098
L-09	Missi Island-Amisk Lake CBS 3107	54-43-10	102-15-05	AU-20	Au,Ag	Gf,Py,As,Cp	qtz. stringers, B-Q gneiss	3	---	0.43 oz Au (G)	0105
L-09	Missi Island-Amisk Lake Laurel B Deposit	54-41-49	102-15-14	AU-24	Au	Py,Cp	silicified shear zone	2	---	0.50 oz Au (G)	0109
L-09	Missi Island-Amisk Lake Laurel D Deposit	54-42-07	102-15-20	AU-26A	Au,Zn,Pb	Py,Cp,Sf,Gn,Qz	mineralized shear in qtz. porphyry	2	---	1.0 oz Au (G)	0111A
L-09	Missi Island-Amisk Lake ML 5022	54-37-19	102-00-25	CD-1	Cd,Zn,Ni	Py,Cp	rhyolite breccia	2Q	0.30% Cu/ 0.5 m. (D)	0.43% Cd/ 0.5 m. (D)	0112
L-09	Birch Lake area R.H. Moody Showing	54-40-45	102-02-40	MO-1	Mo,Au,Ag,Ni	Py,Po,Cp,Mo	shear zone in diorite to gabbro	3, 2Q	0.10% Cu (G)	1.8% Mo (G)	0147
L-09	DYKE claims nos 1 to 6	54-42-10	102-02-25	MO-2	Mo	Py,Po,Cp,Mo	silicified shear zone	3	---	---	0148
L-09	Curved Lake area JD-REX claims	54-41-30	102-02-21	MO-3	Mo,Au,Ag,Zn	Mo,Qz	quartz veins in andesite	3Q	1.09% Cu (G)	0.78% Zn (G)	0149
L-09	A.L. Porres ML 5019	54-41-12	102-03-55	MO-1	Mo,Os,Cr	Py,Po,Cp,Sf,Os, Mo,Cr	talc schist, serpentine	3	---	---	0150
L-09	Sandy Bay area CBS 793	54-35-46	102-05-54	PY-3	Py,Ni	Py	andesite	1	0.18% Cu/ 0.3 m. (D)	0.07% Ni/ 0.3 m. (D)	0159
L-09	Crater Island-Amisk Lake CR claims nos. 1 to 8	54-36-30	102-14-15	PY-5	Au,Ag,Zn,Pb,Py	Py	sheared andesite meta-sediments	1, 3	0.1% Cu/ (D)	---	0161
L-09	Birch Lake area South Pyrite Zone	54-39-05	102-02-10	PY-7	Py,Zn,Au	Py,Po,Cp,Sf	sheared andesite agglomerate	1, 2	1.18% Cu/ 0.4 m. (D)	0.01 oz Au/ 0.03 m. (D)	0163
L-10	Abbot Lake area CBS 826	54-44-25	102-34-15	AG-1	Au,Ag	Py,Po,Cp,Gf	biotite gneiss, amphibolite	1, 3	---	0.70 oz Ag/ 1.2 m. (D)	0179
L-10	Agnew Bay area AGNEW claims nos. 5, 7	54-43-30	102-50-00	AG-2	Au,Ag	Py,Po,Cp	O-F porphyry, sheared dacite	2, 3	0.05% Cu/ 1.6 m. (D)	0.26 oz Ag/ 1.6 m. (D)	0180
L-10	Hanson Lake, Winn Bay	54-39-19	102-46-29	TK-1	Tk	Tk,Mg,Po,Cp	talc schist, diorite	3	---	---	0213
L-11	Deschambault Lake, Northeast Arm	54-44-20	103-14-30	PY-5	Py,Ag,As	Py,Po,Cp,As	graphite schist, O-F gneiss	1, 3	0.07% Cu/ 1.06 m. (D)	0.14 oz Ag/ 0.73 m. (D)	0234
L-13	Brownell Lake area KAY claim no. 3	54-58-45	103-11-00	AU-1	Au,As,Py,Zn	Py,Po,As,Cp,Sf	B-Q-F gneiss, sericite schist	1, 3	0.37% Cu/ 0.9 m. (D)	0.08 oz Au/ 0.9 m. (D)	0247
L-14	Deschambault Lake area CBS 2180	54-45-01	103-27-15	AU-1	Au,Ag,Zn,As	Py,Po,As	H-B-Q granulite	1	0.1% Cu/ 0.2 m. (D)	0.02 oz Au/ 0.2 m. (D)	0269
L-15	Jan Lake area CBS 830	54-50-45	102-59-20	AG-3	Au,Ag,Zn,Pb	Py,Po	quartzite,biotite granodiorite	1, 3	0.3% Cu/ 1.28 m. (D)	0.49 oz Ag/ 1.27 m. (D)	0279
L-15	Jan Lake area CBS 829	54-51-40	102-55-10	AG-4	Au,Ag,Zn	Py,Po	B-Q-actinolite gneiss	1, 3	0.15% Cu/ 0.91 m. (D)	0.29 oz Ag/ 0.82 m. (D)	0280
L-16	Wildnest Lake area CBS 110	54-58-54	102-19-23	AG-1	Au,Ag,Zn,Py	Py,Po,Gf,Cp	O-B-H gneiss	1, 3	0.12% Cu/ (D)	0.19 oz Ag/ (D)	0295

ASSOCIATED CU OCCURRENCES NTS AREA: 63-M

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD. INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC. ASSAY	S.M.D.I NUMBER
M-03	Wood Lake area DOT claim no. 22	55-13-33	103-06-46	AU-1	Au,Ag,Py	Py,Po,Cp	B-Q schist	1, 3	Tr. Cu/ 0.8 m. (D)	0.10 oz Au/ 0.8 m. (D)	0332
M-04	Gee Lake area SAB claim no. 11	55-11-30	103-32-30	PY-1	Au,Ag,Zn	Py,Po,Mb,Qz	hornblende gneiss andesite	1	---	---	0341

ASSOCIATED CU OCCURRENCES NTS AREA: 63-N

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD. INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC. ASSAY	S.M.D.I. NUMBER
N-04	Mari Lake area ML 5075	55-05-03	101-57-13	AU-1	Au,Ag	Au,Po,Cp	quartz veins and stringers	20, 30	2.0% Cu (G)	3.0 oz Au (G)	0411

ASSOCIATED CU OCCURRENCES NTS AREA: 64-D

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD. INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC. ASSAY	S.M.D.I. NUMBER
D-03	Reindeer Lake area KERO claims nos. 1 to 8	56-08-47	103-14-27	PY-1	Py,Zn	Py,Cp,Sf	meta-sediments	1, 3	---	---	0420
D-04	Waddy Lake area Komis Deposit	56-12-30	103-54-00	AU-4A	Au,Ag,Py,Mo,Zn,Pb,Co	Py,Po,Cp,Cl,Cu,Mo,Sf,Gn	quartz veins - andesite contact	2, 3	---	0.122 oz Au (D)	0425A
D-04	Round Lake area EP Zone	56-12-36	103-53-43	AU-4B	Au,Ag,Py,Mo,Zn,Pb,Co	Py,Po,Cp,Cl,Cu,Mo,Sf,Gn	chloritized shear zone	2	---	0.20 oz Au (D)	04258
D-04	Earl Lake area Oven Lake Showing	56-10-21	103-56-55	AU-6B	Au,Ag,Py,Pb	Py,Gn	mineralized shear in mylonite	2, 3	---	0.98 oz Ag (G)	04278
D-05	Sherritt Gordon CBS 1345	56-16-00	103-37-25	AG-1	Ag,Py,As,Zn,Co,Ni	Py,Po,As,Cp,Co,Ni	acidic -andesitic tuffs	1, 3	0.12% Cu/ (D)	0.30 oz Ag/ (D)	0450
D-05	Greenhill Showing Veins A, B, C, D and E	56-17-07	103-54-23	AU-1	Au,As,Py	Py,Po,Cp	sheared qtz. vein granodiorite	2Q	---	2.5 oz Au/ 0.006 m. (D)	0452
D-05	north limb of the Twin Zone	56-15-01	103-53-15	AU-3A	Au,Py,Zn,Ni,Pb	Py,Au	iron formation	1, 3	---	0.68 oz Au/ 1.0 m. (D)	2005A
D-05	Twin Lake area Twin Zone	56-15-01	103-53-15	AU-3B	Au,Py,Zn,Ni,Pb	Py,Au	iron formation	1, 3	---	0.18 oz Au (D)	2005B
D-05	Nistoassini Lake area Sonya Showing	56-15-31	103-15-40	FE-1	Zn,Ni	Py,Po	andesite, dacite	1, 3	0.07% Cu/ (D)	0.27% Zn/ (D)	0461
D-05	Lower Nistoassini Lake area	56-15-44	103-55-30	PY-2	Py,Pb,Au	Py,Po,Cp,Gn	sheared acid volcanics	3Q	---	0.01 oz Au/ 3.0 m. (CP)	0465
D-06	Henry Lake area Augustus Concession	56-24-39	103-29-03	AU-1A	Au,Ag,Pb,Py	Au,Po,Cp,Gn	sheared quartz veins	1, 3Q	0.25% Cu (G)	1.90 oz Au (G)	0478A
D-06	Deep Bay Gf. Deposit CBS 806 and 2016	56-23-00	103-07-30	GF-1	Gf,Py,Ni,Fe,Ag,Co,Zn	Gf,Py,Po,Cp	graphite-Q-B gneiss	1	0.20% Cu/ (D)	0.22 oz Ag/ (D)	0480
D-06	S.M.D.C. CBS 3574	56-23-49	103-05-15	GF-2	Gf,Py	Gf,Py,Cp	biotite gneiss, quartzite	1, 3	---	14.9% C (G)	0481
D-06	Magenta Exploration CBS 2036	56-28-05	103-14-50	PY-2	Py,Fe,Zn	Py,Po,Mg,Gf	Q-B-F gneiss	1, 3	0.02% Cu/ (D)	0.02% Zn/ (D)	0485
D-07	Sherritt Gordon FIN claims	56-20-27	102-47-02	AG-1	Ag,Gf,Mo	Gf	quartz-mica-graphite gneiss	1, 3	0.06% Cu/ (D)	1.1 oz Ag/ (D)	0487
D-08	Dument Lake area CBS 675 and 1369	56-26-58	102-03-40	MO-1	Mo,Zn,Py,Au	Py,Po,Cp,Bo,Mo	meta-sediments	2, 3	0.12% Cu/ 1.4 m. (D)	3.5% Mo (G)	0492
D-08	Wapus Lake area AL claims	56-25-32	102-07-40	PY-2	Py,Zn,U	U,Po	pegmatite	3	---	---	0494
D-10	Lawrence Point area STAR claims	56-36-40	102-50-06	OS-1	Os,Au	Sp	peridotite	1	---	---	0508
D-11	Magenta Exploration Permit No. 1	56-30-31	103-14-08	AU-2	Au	Py,Po,Cp	unknown	1, 3	0.02% Cu (G)	0.02 oz Au (G)	1785
D-11	Birch Point area Augustus Concession	56-30-05	103-04-55	PY-1	Py,Ni	Py,Po,Cp	sheared gabbro,	2	0.05% Cu (G)	0.04% Ni (G)	0516
D-12	Macoun Lake area WAD claim no. 6	56-34-50	103-51-47	PY-1	Py,Ni,U	Py,Po	biotite gneiss	1, 3	0.04% Cu/ (D)	0.04% Ni/ (D)	0522
D-14	Nakamis Lake area KALE-MOK-DECO claims	56-55-12	103-03-00	PY-1	U	Py,Po,Cp	calc-silicate gn. biotite gneiss	3	---	---	0526
D-15	Perry Lake area CBS 802	56-45-25	102-48-44	AG-2	Au,Ag,Zn,Co	Py,Po,Gf	Q-B amphibole gn. Q-B gneiss	1, 3	0.02% Cu/ 0.7 m. (D)	0.12 oz Ag/ 0.7 m. (D)	0529
D-15	Sherritt Gordon CBS 847	56-51-53	102-43-27	AG-3	Ag,Ni,Zn,Co	Py,Po,Gf,Cp	biotite gneiss, diorite	1, 3	0.03% Cu/ (D)	0.18 oz Ag/ (D)	0530
D-15	Sherritt Gordon CBS 848	56-56-14	102-44-30	PY-1	Py,Co,Ni,Fe	Py,Po,Gf	Q-B-amphibole sch Q-B schist	1, 3	0.06% Cu/ (D)	0.03% Ni/ (D)	0532

ASSOCIATED CU OCCURRENCES NTS AREA: 64-E

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD. INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC. ASSAY	S.M.D.I NUMBER
E-05	George Lake area	57-27-40	103-49-30	PY-2	As,Zn	Py,As,Po	argillite	3	---	---	0550
E-10	Swan Lake area CBS 3123	57-33-30	102-50-36	PT-1	Pt,Pl,Au,Ag,Ni, Co,Cr	Py,Po,Cp,Pd	pyroxenite, giorite, gabbro	1, 3	0.60% Cu (G)	0.01 oz Pt (G)	1806
E-12	Great Plains CBS 1044 and 1045	57-38-45	103-57-55	MO-1	Mo	Py,Po,Mo,Cp,Bo, Mo,As,Sf	quartzite float	3	0.21% Cu (G)	0.78% Mo (G)	1688

ASSOCIATED CU OCCURRENCES NTS AREA: 64-L

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD. INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC. ASSAY	S.M.D.I NUMBER
L-04	Parker Island area S-88700 to 88723	58-13-44	103-31-05	AU-1	Au,Ag,Zn,Pb	Py,As	mineralized shear zone	2	0.59% Cu/ (CP)	0.14 oz Au/ (CP)	0816

ASSOCIATED CU OCCURRENCES NTS AREA: 64-M

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD. INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC. ASSAY	S.M.D.I NUMBER
M-03	Nordbye Lake area CBS 1858	58-04-51	103-25-33	RE-1	Re,Py,Ni,U,Th	U,Py,Mg,Hm,Mk	fracture fillings in pegmatite	2, 3	0.02% Cu (G)	0.10% Re/ (D)	0853
M-12	Sabre Petroleum Permit No. 1	59-34-25	103-42-43	AG-1	Ag,Th,Ni,Zn,Mo, U	Py,Po,Gf	graphite schist, calc-silicate gn.	1	0.02% Cu/ (D)	0.30 oz Ag/ (D)	0860

ASSOCIATED CU OCCURRENCES NTS AREA: 73-O

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD. INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC. ASSAY	S.M.D.I NUMBER
O-14	Primeau Lake area CBS 1993	55-54-50	107-09-30	MO-1	Mo,Py,Fe	Mo,Hm,Py,Cp,Gt, Ch	granite	1, 3	0.02% Cu/ (D)	0.92% Mo/ (CH)	0705
O-16	Laxdal Lake area	57-55-03	106-09-03	AG-1	Au,Ag,Py,Ni,Zn, Pb	Py,Po,Gf	hornblende rich calc-silicate	2, 3	0.17% Cu (T)	12.9 oz Ag (T)	0710

ASSOCIATED CU OCCURRENCES NTS AREA: 73-P

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD. INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC. ASSAY	S.M.D.I NUMBER
P-02	Hunter Bay area CBS 36	55-13-00	104-37-00	PY-1A	Py	Py,Po,Cp	F-Q porphyry, hornblende gneiss	3	---	---	0723A
P-02	Baby Gull and Duddy Islands area	55-11-30	104-40-00	PY-1B	Py	Py,Po,Cp	F-Q porphyry, hornblende gneiss	3	---	---	0723B
P-05	Clam-Head Lakes area MAC claims nos. 63 to 71	55-17-37	105-36-19	PY-2	Py,Po,Ni	Py,Po,Mg	biotite gneiss, arkosite	3	0.03% Cu/ (D)	0.02% Ni/ (D)	0731
P-06	Elizabeth Lake area Lobester Mo Showing	55-19-53	105-22-22	MO-1	Mo	Mo	pegmatite	3	0.002% Cu (G)	0.0045% Mo (G)	0746
P-06	Pete Lake area	55-22-40	105-18-55	MO-2A	Py,Mo	Mo	pegmatite	3	---	---	0747A
P-06	Pete Lake area	55-20-30	105-27-00	MO-2B	Mo,Py	Mo,Py	pegmatite	3	---	---	0747B
P-07	North Contact Lake area S-95321	55-26-20	104-51-14	AG-1	Ag	Py,Lm,Cu,Mo	calc-silicate	1, 3	0.01% Cu (G)	0.5 oz Ag (G)	0751
P-07	Preview Lake North and South Zones	52-26-00	104-48-50	AU-1	Au	Py,Po,As,Cp	calc-silicate	1, 3	0.09% Cu (G)	2.7 oz Au (G)	0754
P-07	Pop Lake area Pop Lake A Zone	55-24-15	104-50-22	AU-5	Au	Py,Po,As,Cp,Gn, Au	sheared diorite, quartz veins	1, 3Q	---	0.26 oz Au/ 93.0 m. (D)	0758
P-07	Lynx Lake area Gun Showing	55-20-25	104-57-40	AU-8	Au	Py,Cp,Ag	mineralized qtz. veins in shear	2, 3Q	0.28% Cu (G)	0.80 oz Au/ 1.5 m. (D)	0761
P-07	Sulphide Lake area Sulphide A to G Zones	55-21-06	104-55-44	AU-10	Au	Py,Po,Gf,As,Au,	sheared qtz vein quartz porphyry	2, 3Q	1.2% Cu (G)	4.5 oz Au/ (D)	0763
P-07	Upicas Lake area CBS 1846 and 1851	55-28-05	104-55-45	AU-12	Au,Ag	Cp,Py,Gn,Au	sheared smoky quartz veins	2Q	0.18% Cu (G)	11.79 oz Au (G)	0765

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD. INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC. ASSAY	S.M.D.I NUMBER
P-07	Tenaycke Lake area	55-26-17	104-55-05	AU-14	Au,Ag	Cp	skarn	2	0.31% Cu (T)	0.17 oz Au (T)	0767
P-07	East Ramsland Lake area CBS 2031 and 3484	55-27-25	104-50-25	AU-16	Au,Ag,Py,Cu	Py	sheared biotite chlorite schist	2	---	4.21 oz Au (G)	0769
P-07	East Ramsland Lake area CBS 2031 and 3484	55-27-21	104-49-50	AU-17	Au	Au,Cp,Py	fractured granite	2	---	---	0770
P-07	East Ramsland Lake area CBS 2031 and 3484	55-27-00	104-50-25	AU-18	Au,Ag	Py	quartz stringers, diorite	2, 3	0.09% Cu (T)	0.98 oz Au (T)	0771
P-08	Big Whitemoose Lake area CBS 778 and 779	55-17-00	104-11-30	PY-1A	Ni	Py,Po,Cp	calc-silicate, G-B gneiss	2, 3D	0.04% Cu/ (D)	0.08% Ni/ (D)	0802A
P-08	Big Whitemoose Lake area CBS 779 and 780	55-17-00	104-11-30	PY-1B	Ni	Py,Po,Cp	calc-silicate, amphibole gneiss	1, 3	---	---	0802B
P-08	Keg Lake area CBS 775 and 778	55-24-40	104-01-16	PY-2B	Gf	Py,Po,Cp	biotite gneiss, hornblende gneiss	1, 3	---	---	0803B
P-10	Ripew Lake area CBS 855	55-44-15	104-59-50	PY-8	Py,Po,Au,Zn,Ni	Py,Po,Cp	biotite gneiss, calc-silicate gn.	3	0.10% Cu/ 0.36 m. (D)	0.15% Zn/ 0.94 m. (D)	0845
P-15	Gochager Lake area CBS 574	55-45-45	104-58-50	PY-1	Ni,Co,Zn	Py,Po,Cp,Gf	meta-sediments, gabbro	1, 2	0.09% Cu/ (D)	0.05% Ni/ (D)	0863
P-16	Star Lake A to C Zones ML 5100	55-59-43	104-17-02	AU-5	Au,Ag	Qz,Au,Py,Po	mineralized qtz vein in diorite	3	0.04% Cu/ (CH)	0.50 oz Au/ (CH)	0890
P-18	Tamar Au Zone ML 5453	55-58-15	104-17-25	AU-6	Au,Ag	Au,Py,Cp	mineralized qtz. vein in a shear	2D	---	0.78 oz Au/ 1.92 m. (D)	0891

ASSOCIATED CU OCCURRENCES NTS AREA: 74-A

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD. INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC. ASSAY	S.M.D.I NUMBER
A-01	Partington Lake area Augustus Withdrawl	56-10-18	104-10-02	AG-1	Au,Ag	Py,Po,Cp	rhyolite	1	0.12% Cu (G)	0.26 oz Ag (G)	0800
A-01	Mallard or Decade Deposit	56-08-33	104-16-30	AU-1	Au,Mo,Ag,Sb	Au,Cu,Py,Po,Cp, Mo,Sb,Tl	qtz. vein network in a shear zone	2	---	1.15 oz Au per ton (D)	0801
A-01	Tower Lake East Showing	56-11-03	104-03-48	AU-3	Au,Py,Ag	Py,Cp,Mg,Po	granodiorite, andesite, dacite	3	---	15.98 oz Au (G)	0803
A-01	Tower veins 1, 3, and 4 ALLEN claims	56-02-42	104-10-20	AU-5	Au,Py	Py,Cp	sheared, silicif. granodiorite	2D	---	0.29 oz Au (T)	0805
A-01	Island Lake area KALMA claims nos. 1 to 9	56-00-12	104-13-45	AU-7A	Au,Py	Py,Po,Cp,Gf	quartz vein, greywacke	2D	---	---	0807A
A-01	Alpat Lake area DREW claim group	56-00-34	104-19-06	AU-7B	Au,Py	Py,Po,Cp,Gf	mineralized shear in greywacke	2D	---	---	0807B
A-01	Kirk-Huno Lakes area Woody Concession	56-12-43	104-05-30	FE-2	Fe,Zn,Py,Ag,Ni, Au	Py,Po,Cp,Sf	mineralized shear basic volcanics	1, 3	0.7% Cu (G)	0.4% Zn (G)	0817
A-03	Dunn Lake area CBS 2004	56-10-32	105-04-57	PY-1	Py,Ni	Py,Po,Cp,Mg	meta-sediments	3	0.1% Cu/ 1.7 m. (D)	0.1% Ni/ 1.7 m. (D)	0929
A-06	Great Plains Permit No. 1	56-22-14	106-22-35	FL-2	Fl,Pb,Zn,U,Mo, Ag	Fl	meta-conglomerate	2, 3	0.01% Cu (T)	0.12 oz Ag (T)	0951
A-06	Fannon Lake area CBS 3440	56-20-12	105-25-25	MO-1	Mo,Zn	Mo,Sf	quartzite lenses and pegmatite	1, 3	---	0.44% Mo (T)	0952
A-10	Sico Mining ML 4	56-32-52	105-53-12	PY-1	Py	Py,Po,Cp	pegmatite, migmatite	3	---	---	0970

ASSOCIATED CU OCCURRENCES NTS AREA: 74-B

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD. INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC. ASSAY	S.M.D.I NUMBER
B-06	Sunlite Oil Permit No. 2	56-24-37	107-08-07	AG-1	Au,Ag,Ni,Zn	Py,Po,Cp	quartz-garnet-hornblende gneiss	3	0.11% Cu (G)	0.01% Ni (G)	1041
B-06	Sunlite Oil Permit No. 2	56-17-25	107-15-00	AG-2	Au,Ag,Ni,Zn	Py,Po	iron formation, granulite	3	0.18% Cu (G)	0.18% Zn (G)	1042
B-06	Sunlite Oil CBS 1993	56-19-07	107-04-40	AU-1	Au,Ag,Ni,Co	Py,Po,Cp,As,Cu	sulphide vein in granulite	2	0.37% Cu/ 0.5 m. (T)	0.36 oz Au/ 0.3 m. (T)	1043
B-09	Dynamic Petroleum Zone 3F	56-42-17	106-12-04	CU-1	Py,Gf,Ni,Cu	Py,Gf,Cp	pegmatite, quartzite	1	0.10% Cu (G)	0.10% Zn (G)	1065

ASSOCIATED CU OCCURRENCES NTS AREA: 74-G

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD. INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC. ASSAY	S.M.D.I NUMBER
G-12	Virgin Lake area Virgin Lake Showing	57-31-38	107-49-31	MS-1	Au,Ag,U,Ni	Cp,Ci,Mi	gabbro to diabase dyke	3	1.23% Cu (G)	3.48 oz Ag (G)	2083

ASSOCIATED CU OCCURRENCES NTS AREA: 74-H

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD. INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC. ASSAY	S.M.D.I NUMBER
H-01	Johnson River area Johnson River Showing	57-13-55	104-17-40	FL-1	Fl	Fl,Cu	meta-diorite, arkose	3	---	---	1121
H-03	Alexander Lake area	57-08-41	104-38-02	MO-1	Mo,Ag,Au	Py,Po,Cp,Mo	B-F gneiss, arkose, pegmatite	3	0.04% Cu (G)	0.07% Mo (G)	1124
H-02	Fraser Lake area	57-06-34	104-50-20	MO-2	Mo	Cp,Mo	B-H gneiss	2, 3	0.01% Cu (G)	0.20% Mo (G)	1125
H-08	Mud Lake area CBS 1036	57-25-43	104-17-35	MO-2	U,Mo,Au,Ag,Co, Th	Py,Po,Cp,As,Mo, U	meta-arkose, meta-sediments	1, 3	0.10% Cu (D)	1.7% Mo (D)	1136
H-08	Coral Lake area	57-15-50	104-05-35	PY-1	Py,Ni	Cp	H-B gneiss, meta-gabbro	3	0.05% Cu (G)	0.05% Ni (G)	1139

ASSOCIATED CU OCCURRENCES NTS AREA: 74-N

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD. INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC. ASSAY	S.M.D.I NUMBER
N-07	Box Au Mine	59-27-10	108-31-25	AU-1	Au,Pb,Zn,U	Au,Py,Cp,Gn	granite sill, quartz stockwork	2	---	0.045 oz Au (D)	1210
N-07	Langley Bay area CBS 380	59-24-41	108-51-25	FE-1	Fe	Bo,Cp,Mm	granite gneiss, quartzite	1	---	---	1214
N-08	Melma Lake area Melma Au Showing	59-28-30	108-30-00	AU-2	Au,Ag,As,Pb	Au,Py,Gn,As,Cp	quartz stringers in granite	PO, 3Q	---	---	1258
N-08	Athona Au Mine	59-26-47	108-29-16	AU-3	Au,Ag,As,Zn,Pb	Py,Po,Cp,Ch,Au, Gn	quartz stockwork in granite	1, 2, 3	---	0.052 oz Au (D)	1257
N-13	Asamera Oil Permit No. 1	59-50-10	109-30-55	AG-2	Au,Ag,Ni	As,Cp,Py,Bo	Quartzite, phyllite	2	0.05% Cu (?)	0.14 oz Ag (?)	1527

ASSOCIATED CU OCCURRENCES NTS AREA: 74-O

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD. INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC. ASSAY	S.M.D.I NUMBER
O-02	Shasko Bay area CBS 215	59-14-52	106-47-50	AU-1	Au,Ag,U,Mo,Pb, Zn	Py,Po,Cp,Au,Ag, Qz	mineralized quartz veins	1, 3	0.08% Cu/ (D)	0.02 oz Au/ (D)	1093
O-07	Goldfields Uranium Elna Showing	59-10-30	106-34-00	AU-1	Au,Ag	As,Py,Cp	biotite gneiss	2, 3	---	1.20 oz Au/ (D)	1574

ASSOCIATED CU OCCURRENCES NTS AREA: 74-P

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD. INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC. ASSAY	S.M.D.I NUMBER
P-08	Herbert Lake area CBS 2623	58-37-40	104-21-07	FE-1	Fe,Pb,Zn,Ni,Au, Ag,Gf	Py,Po,Mg,Gt,Cp, Gf,Au,Ag	granite gneiss, biotite gneiss	1, 3	0.11% Cu/ 0.6 m. (D)	0.10 oz Au/ 0.6 m. (D)	1674

PB OCCURRENCES NTS AREA: 63-L

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD. INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC. ASSAY	S.M.D.I NUMBER
L-10	H.B.E.D. CBS 117	54-40-00	102-30-30	PB-2	Zn	Py,Po,Gf	Q-M-B gneiss, serpentine	1, 3	0.40% Pb/ 0.55 m. (D)	0.10% Zn/ 0.55 m. (D)	0210
L-15	H.B.E.D. Young Showing	54-45-00	102-50-00	PB-1	Zn,Cu,Ag	Sf,Gn,Py,Po,Cp, Mg	actin.-B-diopside garnet gneiss	3	---	0.12 oz Ag/ 1.5 m. (D)	0291

PB OCCURRENCES NTS AREA: 64-D

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD. INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC. ASSAY	S.M.D.I NUMBER
D-08	Nickel Rim Mines Augustus Concession	58-19-58	103-21-00	PB-1	Au,Ag,Py,Cu	Gn,Py,Po,Cp	sheared migmatite	3Q	---	0.5 oz Ag (G)	0483

PB OCCURRENCES NTS AREA: 64-E

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD. INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC. ASSAY	S.M.D.I NUMBER
E-05	Falconbridge CBS 1	57-29-43	103-44-10	PB-1	Zn,Ag	Py,Qz,As,Gn,Sf, Po	quartz vein in argillite	1D	9.3% Pb (G)	4.8% Zn (G)	0548
E-11	E. Partridge Permit No. 1	57-39-35	103-17-35	PB-1A	---	Gn,Py,Qz	quartzite float or frost heave	3	---	---	0578A
E-11	E. Partridge Permit No. 1	57-39-35	103-17-35	PB-1B	---	Gn,Py,Qz	quartzite float or frost heave	3	---	---	0578B
E-11	E. Partridge Permit No. 1	57-33-50	103-29-15	PB-2	---	Gn,Py,Po,Qz	quartzite boulder	2, 3	---	---	0570
E-11	E. Partridge Permit No. 1	57-40-10	103-14-10	PB-3	---	Gn,Py	quartzite boulder	3	---	---	0580
E-12	Marline Oil Anomaly Lake area	57-40-55	103-05-51	PB-1	---	Gn	biotite quartzite boulder	3	1.48% Pb (G)	---	1906
E-12	Falconbridge Permit No. 1	57-36-35	103-49-30	PB-2	Ag	Gn,Py,Po	quartzite	3	0.56% Pb (G)	0.14 oz Ag (G)	0590
E-12	Falconbridge Permit No. 1	57-40-50	103-48-45	PB-3	Ag	Gn,Py,Po,Gf	quartzite frost heave	3	5.2% Pb (G)	1.9 oz Ag (G)	0597
E-12	Falconbridge Permit No. 1	57-30-00	103-58-05	PB-4	Ag	Gn	quartzite boulder	3	7.1% Pb (G)	1.8 oz Ag (G)	0596
E-12	Nufert Resources CBS 6067	57-40-53	103-40-13	PB-5	Ag	Sm,Sf,Py,Po	quartzite	3	5.20% Pb (G)	1.80 oz Ag (G)	1824
E-13	New Continental Oil - Royal Cdn. Ventures	57-54-06	103-31-15	PB-1	Cu,Zn,U	Py	hornblende granite	3	0.21% Pb (G)	0.082% Cu (G)	1830

PB OCCURRENCES NTS AREA: 64-L

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD. INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC. ASSAY	S.M.D.I NUMBER
L-04	Gulf Minerals ML 5222	58-05-06	103-48-45	PB-1	U,Cu,Ni	---	overburden sample	---	7.1% Pb (G)	---	1909

PB OCCURRENCES NTS AREA: 73-P

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD. INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC. ASSAY	S.M.D.I NUMBER
P-06	W. Knox CBS 1470	55-17-30	105-05-05	PB-1	Zn	Py,Po,Gf	biotite gneiss	3	0.41% Pb (G)	0.35% Zn (G)	0750
P-07	North Contact Lake Zone	55-26-25	104-50-30	PB-1	Zn,Cu,As,Py,Ni	Gn,Sf,Cp,Py	metasedimentary felsic gneiss	?	---	0.32 oz Au/ 3.0 m. (CH)	0791
P-07	Great Plains CBS 1397	55-24-50	104-50-30	PB-2	Au,Ag,Cu,Zn	Gn,Py,Po	sheared biotite gneiss	1, 2, 3	1.2% Pb (G)	1.1% Zn (G)	0792
P-10	Wipaw Lake area	55-42-30	104-56-30	PB-1	Po,Py,Cp	Gn,Py,Po,Cp	biotite gneiss	3	---	---	0837

PB OCCURRENCES NTS AREA: 74-A

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD. INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC. ASSAY	S.M.D.I NUMBER
A-01	Augustus Exploration Breyanton Lake area	56-03-29	104-10-35	PB-1	Py	Py,Gn	quartz porphyry	3	---	---	0010
A-04	Husky Oil CBS 1000	56-12-03	105-44-30	PB-1	Zn,Py	Sf,Gn	quartzite	3	---	---	0032
A-15	Cominco CBS 596 to 599	56-55-05	104-49-00	PB-1	Py,Po,As,Cp,Cu Gn,Sf	Py,Po,As,Cp,Pb, Cu,Gn,Sf	quartzite, and argillite	1, 3	0.1% Pb (D)	0.09% Cu (D)	1003
A-15	Wathaman River area	56-52-56	104-54-33	PB-2	Zn,Ag	Gn,Sf	quartzite boulder	2, 3	10.0% Pb (G)	1.0% Zn (G)	0300

PB OCCURRENCES NTS AREA: 74-H

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD. INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC. ASSAY	S.M.D.I NUMBER
H-07	Great Plains Permit No. 2	57-16-10	104-30-33	PB-1	Au,Ag,Cu,Zn,Mo	Mo	meta-arkose, G-F-S gneiss	3	4.8% Pb (G)	3.6% Zn (G)	1133

PB OCCURRENCES NTS AREA: 74-N

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD. INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC. ASSAY	S.M.D.I NUMBER
N-08	Van Allan Anchor Showing	59-29-25	108-27-00	PB-1	Zn,Ag	Gn,Sf	limestone	2	21.0% Pb (G)	3.5% Zn (G)	1253
N-10	Scope Development CBS 495	59-40-00	108-40-25	PB-1	Cu,Ag	Gn,Cp	brecciated amphibolite	2	1.00% Pb (G)	0.20% Cu (G)	1357
N-12	Asamera Oil Permit No. 1	59-43-50	109-56-55	PB-1	Au,Ag,Cu	Gn,Py	mineralized shear zone	1	[illegible]% Pb (G)	0.92 oz Ag (G)	1519
N-13	Lamont Lake area	59-53-30	109-59-30	PB-1	---	Gn	granodiorite	1, 3	---	---	1530
N-16	Corman Lake area A.R. Hooker Zones	59-46-45	108-14-10	MI-1	Pb,Zn,Cu,Cd	Py,Po,Cp,Qz	sheared gabbro	2	0.58% Pb (G)	4.64% Zn (G)	1547

PB OCCURRENCES NTS AREA: 74-O

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD. INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC. ASSAY	S.M.D.I NUMBER
O-16	Fond du Lac area	59-19-00	107-11-30	PB-1	Ag,Cu,Zn	Jm,St,Sf,Cp,As	quartz vein	---	---	---	1571

ASSOCIATED PB OCCURRENCES NTS AREA: 63-M

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD. INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC. ASSAY	S.M.D.I NUMBER
M-13	Murtock Option CBS 521	55-59-20	103-52-30	AG-1	Au,Ag,Zn,Cu,Mo, Gf	Py,Po,Sf,Gn,Gf	calc-silicate, biotite gneiss	1	0.11% Pb (G)	1.0% Zn (G)	0380

ASSOCIATED PB OCCURRENCES NTS AREA: 64-D

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD. INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC. ASSAY	S.M.D.I NUMBER
D-09	Nickel Rim Mines Augustus Concession	56-39-30	103-26-03	AU-19	Au,Ag,Cu,Py	Au,Po,Cp,Gn	sheared qtz. vein in Mpl. gneiss	1, 30	---	1.9 oz Au (G)	04708

ASSOCIATED PB OCCURRENCES NTS AREA: 64-E

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD. INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC. ASSAY	S.M.D.I NUMBER
E-12	Falconbridge CBS 1	57-01-05	103-37-30	AG-1	Ag	Py,Po,As,Gn	frost heave quartz vein	2	4.8% Pb (G)	27.0 oz Ag (G)	0384

ASSOCIATED PB OCCURRENCES NTS AREA: 64-L

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD. INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC. ASSAY	S.M.D.I NUMBER
L-02	Fetherstuah Lake area [illegible]	56-05-34	102-16-24	MO-1	Mo,Zn,Au,Cu	Py,Po,Sf,Gn,Mo, +/- Mo,Sf	sheared meta-quartzite	2	0.24% Mo (G)	0.224 Mo (G)	0611

ASSOCIATED PB OCCURRENCES NTS AREA: 73-I

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD. INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC. ASSAY	S.M.D.I NUMBER
I-14	Brascan Resources CBS 1000	58-55-53	105-13-56	AG-1	Au,Ag,Zn,Cl	Cl,Py,Mo,Fl,Sf Gn	limestone, dol. sandstone	0, 3	---	0.33oz Ag/ 1.2 m. (G)	0667
I-14	Brascan Resources Permit No. 1	58-52-27	105-17-30	CL-1	Cl,Cu,Zn	Cl,Py,Mo,Gn,Sf	limestone, dol. sandstone	3	---	---	0668

ASSOCIATED PB OCCURRENCES NTS AREA: 73-P

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD. INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC. ASSAY	S.M.D.I NUMBER
P-07	Galena Zone Bee Showing	55-21-19	104-53-28	AU-4	Au,Ag,Cu	As,Py,Gn,Sf,Au, Cp	sheared greywacke meta-sediments	0, 3	1.70% Pb (G)	1.2 oz Au/ 1.8 m. (DH)	0757
P-07	Sulphide Lake area South Camp Showing	55-20-17	104-52-50	AU-6	Au,Ag	Py,As,Gn,Sf,Au, Gf,Po	sheared quartz veins	20, 30	---	0.05 oz Au (G)	0759
P-07	Hidden Lake area	55-28-40	104-47-50	AU-13	Au	Py,Po,As,Gn,Sf, Gf	aplite dyke, quartz veins	1, 30	---	0.01 oz Au (G)	0766
P-10	Roundish Lake area Roundish Lake Showing	55-53-35	104-46-47	AG-1	Ag	Gn	quartz veins in granite	1, 30	1.47% Pb (G)	9.70 oz Ag (G)	2136

ASSOCIATED PB OCCURRENCES NTS AREA: 74-C

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD. INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC. ASSAY	S.M.D.I NUMBER
C-16	Proudfoot Lake area	56-57-40	106-25-30	PY-1	Py,Fe,Zn,Cu	Mg,Py,Po,St	granodiorite, meta-sediments	1	0.3% Pb (G)	0.03% Zn (G)	1094

ASSOCIATED PB OCCURRENCES NTS AREA: 74-N

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD. INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC. ASSAY	S.M.D.I NUMBER
N-07	Star Point area STAR claims	58-28-04	108-30-36	AU-3	Au	Au,Py,Gn	quartz veins, granite	0, 3	---	---	1212
N-08	Caldwell Bay area CBS 2884	59-28-36	108-21-56	AU-1	Au,Fe,Cu,U	U,Qz,Py,Gn,Cp	quartz veins, granite	20, 3	---	0.24 oz Au/ 0.6 m. (EP)	1255

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC. ASSAY	S.M.D.I NUMBER
N-08	Caldwell Bay area BM claims	59-26-50	108-21-20	AU-6	Au	Au,Gn,Py,Po,Qz	quartz stringers in granite	2Q, 3	---	---	1260
N-08	Fish Hook Bay area Yah Au Showing	59-27-25	108-22-45	AU-7	Au	Au,Py,Qz	quartz stringers in granite	3Q	---	---	1261
N-09	Ace Lake area NW claims	59-33-50	108-23-5b	W-1	U,W	Gn,Sh,Py,U	mineralized shear in hbl. gneiss	2, 3	---	1.14% U/ 5.8 m. (D)	1284
N-12	Asamera Oil Permit No. 1	59-44-40	109-57-50	AG-2	Ag,Cu,Zn	Gn,Py,Cp	quartzite, phyllite	1, 3	0.06% Pb (T)	0.14 oz Ag (T)	1516
N-13	Asamera Oil Permit No. 1	59-45-00	109-57-45	AG-1	Au,Ag,Cu	Gn,Bo,Cp,Py	quartzite, phyllite	1, 3	0.08% Pb (T)	0.48 oz Ag (T)	1525

NI OCCURRENCES NTS AREA: 63-K

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD. INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC. ASSAY	S.M.D.I NUMBER
K-12	Granges Exploration SOOM claim no. 5	54-39-45	101-58-50	NI-1	Cu	Py,Po,Mg,Cp	andesite	1, 3	0.17% Ni/ 0.3 m. (D)	0.35% Cu/ 0.3 m. (D)	1860

NI OCCURRENCES NTS AREA: 63-L

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD. INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC. ASSAY	S.M.D.I NUMBER
L-09	H.B.E.D. Brain Option	54-37-48	102-01-46	NI-1	Cu,Os	Po,Cp	sheared basaltic andesite	1, 2, 3	0.16% Ni/ 0.6 m. (D)	4.0% Os/0.6 m. (D)	0152
L-10	Western Nuclear Mines CBS 818	54-34-10	102-50-30	NI-1	---	Po,Mg	peridotite	2, 3	0.24% Ni/ 1.2 m. (D)	---	0207
L-10	Hanson Lake, Winn Bay area	54-39-30	102-49-30	NI-2	---	Po	gabbro, pyroxenite	3	---	---	0208
L-16	Walsh Lake area	54-46-47	102-15-18	NI-1	Cu	Po,Cp,Sf	gabbro, pyroxenite	3	0.41% Ni/ (D)	0.41% Cu/ (D)	0312

NI OCCURRENCES NTS AREA: 63-M

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD. INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC. ASSAY	S.M.D.I NUMBER
M-06	S. Bruce et al TRI-AIG-SIG claims	55-17-00	103-26-15	NI-1	Cu	Py,Po,Cp,Mg	syenite to gabbro plug	2, 3	1.0% Ni (G)	0.5% Cu (G)	0352
M-13	Scurry Rainbow CBS 523	55-59-00	103-51-00	NI-1	Py,Cu	Po,Pd,Cp	peridotite	2	---	---	0396

NI OCCURRENCES NTS AREA: 64-D

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD. INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC. ASSAY	S.M.D.I NUMBER
D-04	Granges Exploration CBS 2220	56-08-48	103-47-54	NI-1	Py,Zn,Cu,Fe	Py,Po,Mg	D-B-H gneiss, peridotite	1	0.22% Ni/ 1.03 m. (D)	0.29% Zn/ 0.5 m. (D)	0439

NI OCCURRENCES NTS AREA: 64-E

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD. INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC. ASSAY	S.M.D.I NUMBER
E-01	R.W. Douglas Kinoosao Showing	57-05-30	102-02-20	NI-1	Cu,Zn,Ag,Pb	Po,Cp,Sf,Gn	B-Q-F gneiss hornblende gneiss	3	0.04% Ni (G)	0.1 oz Ag (G)	0535
E-13	Noranda - S N D C CBS 2658	57-54-56	103-59-53	NI-1	Pb,U,Cu	Py,Po,Gf	pelitic gneiss	3	0.13% Ni/ (D)	---	1890

NI OCCURRENCES NTS AREA: 64-L

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD. INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC. ASSAY	S.M.D.I NUMBER
L-09	Ronrico Exploration CBS 6547	58-42-37	102-23-18	NI-1	Cu	Po,Cp	quartzite boulder	3	0.21% Ni (G)	0.05% Cu (G)	1939
L-12	Gulf Minerals ML 5211	58-31-19	104-44-35	NI-1B	---	Ch,Py	graphite gneiss	2	0.35% Ni/ 0.8 m. (D)	---	19428

NI OCCURRENCES NTS AREA: 73-P

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD. INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC. ASSAY	S.M.D.I NUMBER
P-06	E. Partridge MUSKVA claims	55-26-00	105-16-00	NI-1	Cu	Po,Cp	basic intrusive	3	0.3% Ni (G)	0.3% Cu (G)	0748
P-07	Centennial Mines CBS 1400	55-23-08	104-41-22	NI-1	Cu,Tk,Cr	Py,Po	peridotite, talc	3	0.13% Ni/ (D)	0.09% Cu/ (D)	0789
P-11	V.L. Paulger CBS 1025	55-40-15	105-05-00	NI-1	Cu,Au,Ag	Po,Cp	B-B gneiss	3	0.20% Ni (G)	0.14% Cu (G)	0851
P-15	Noranda Exploration CBS 834 to 846	55-58-45	104-41-02	NI-2	Cu,Au	Py,Po,Cu,Cp,Gf	calc-silicate gneiss	1, 3	0.4% Ni/ 0.7 m. (D)	0.08% Cu/ 0.7 m. (D)	0881

NI OCCURRENCES NTS AREA: 74-A

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD. INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC. ASSAY	S.M.D.I NUMBER
A-03	Nagle Lake area Olson Showing	56-02-06	102-22-50	NI-1A	Cu,Py	Po,Cp	pyroxenite	3	0.20% Ni (G)	0.170% Cu (G)	0928A
A-03	Nagle Lake area CBS 666	56-02-06	102-22-50	NI-1B	Cu,Py	Py,Po,Cp	gabbro	3	---	---	0928B
A-03	Nagle Lake area CBS 666	56-02-06	102-22-50	NI-1C	Cu,Py	Po,Mt	meta-sediments, granite	3	---	---	0928C
A-07	Tremblay-Olson Showing	56-19-47	104-51-13	NI-2	Cu,Zn,Pb	Po,Cp	pyroxenite	1, 3	3.11% Ni (G)	0.91% Cu (G)	0959

NI OCCURRENCES NTS AREA: 74-B

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC. ASSAY	S.M.D.I NUMBER
B-02	Western Mines Rod Showing	56-09-12	106-47-41	NI-1	U,Cu,Pb,Ag,Co, Zn,Mo	Pc,Gf,Cd,As,Py	quartzite in a calc-silicate	3	0.27% Ni (G)	0.06% U3O8 (G)	1958

NI OCCURRENCES NTS AREA: 74-G

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD. INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC. ASSAY	S.M.D.I NUMBER
G-06	Marline Oil CBS 5248	57-29-32	107-03-18	NI-1	U,Cu,Co	Mn	diabase dyke	3	0.12% Ni (G)	0.17% Cu (G)	2058
G-06	S M D C MPP 1074	57-21-43	107-02-00	NI-2	Zn,Pb,U	Py,Mn,Ch	regolith	3	0.34% Ni/ (D)	0.14% Zn/ (D)	2059

NI OCCURRENCES NTS AREA: 74-H

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD. INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC. ASSAY	S.M.D.I NUMBER
H-02	Fraser Lake area	57-08-25	104-47-58	NI-1	Cu	Po,Cp	diorite to gabbro	3	0.19% Ni (G)	0.09% Cu (G)	1126

NI OCCURRENCES NTS AREA: 74-O

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD. INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC. ASSAY	S.M.D.I NUMBER
O-08	Canadian Nickel EG claims	59-21-20	106-17-00	NI-2	Cu,Mo	Po,Cp,Py,Mo,Mg	norite	2, 3	0.80% Ni (G)	0.81% Cu (G)	1584
O-08	Torwest Resources CBS 302	59-19-50	106-07-50	NI-4	Cu	Po,Cp	sheared gossan	3	0.91% Ni (G)	0.32% Cu (G)	1586
O-08	Inexco Permit No. 6	59-19-30	106-04-45	NI-5	Cu	Py,Po,Cp	gossan	3	0.07% Ni (G)	0.4% Cu (G)	1587

NI OCCURRENCES NTS AREA: 74-P

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD. INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC. ASSAY	S.M.D.I NUMBER
P-05	BET claims	59-16-35	105-48-32	NI-1	Cu	Py,Po,Cp,Mg,Gt	norite	2, 3	---	---	1631
P-11	G. MacDonell MM claims	59-35-50	105-19-25	NI-2	Cu	Cp,Po,Hy	sheared norite	2	0.25% Ni (G)	0.15% Cu (G)	1680
P-12	Nickel Lake area FERNE-GINA claims	59-31-08	105-41-58	NI-1A	Cu	Py,Po,Cp,As,Lm, Mg,Bo	garnet pyroxene granulite	2	---	---	1687
P-12	Nickel Lake area FERNE-GINA claims	59-30-29	105-45-18	NI-1B	Cu	Py,Po,Cp,As,Lm, Mg,Bo	garnet pyroxene granulite	2	---	---	1769
P-12	Reeve Lake area	59-30-05	105-51-00	NI-2	---	Po	norite sill	3	---	---	1688
P-12	Kline Lake area	59-35-45	105-42-25	NI-3	Cu,Py	Py	sheared hbl. paragneiss	2, 3	---	---	1689
P-14	Breyant Lake area	59-50-15	105-25-30	NI-1	Cu	Py,Po,Cp	sheared norite plug	1, 2, 3	0.15% Ni (G)	0.10% Cu (G)	1891

ASSOCIATED NI OCCURRENCES NTS AREA: 63-K

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD. INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC. ASSAY	S.M.D.I NUMBER
K-12	Meridian Lake area ML 4892	54-45-00	101-59-36	AG-1	Au,Ag,Cu	Py,Po,Cu	andesite tuff, andesite	1, 2	0.5% Ni/ 0.37 m. (D)	0.35 oz Ag/ 0.37 m. (D)	0004

ASSOCIATED NI OCCURRENCES NTS AREA: 63-L

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD. INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC. ASSAY	S.M.D.I NUMBER
L-09	Gull Island-Amisk Lake LUCKY claim no. 9	54-42-34	102-15-43	W-1	W,Co,Ag,Py	Py	chlorite schist	1, 3	0.11% Ni/ 1.0 m. (D)	0.15% W/ 1.0 m. (D)	0168

ASSOCIATED NI OCCURRENCES NTS AREA: 73-P

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD. INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC. ASSAY	S.M.D.I NUMBER
P-07	Clearwater Showings A+B-VEIL claims	55-24-05	104-50-55	AU-11	Au,Ag	Py,Po,As,Cp,Au	sheared iron formation	20	0.108 Ni/ 0.3 m. (D)	0.14 oz Au/ 0.3 m. (D)	0744
P-10	Nipew Lake area EBS #57	55-42-14	104-57-35	PY-8	Py,Po,Cu	Py,Po,Cp,Gf	calc-silicate gneiss	1, 3	0.03% Ni/ 1.55 m. (D)	---	0843
P-10	Nipew Lake area EBS #53	55-43-09	104-58-05	PY-7	Py,Po,Cu	Py,Po,Cp	hornblende gneiss	1, 3	0.08% Ni/ 0.33 m. (D)	---	0844

ASSOCIATED NI OCCURRENCES NTS AREA: 74-A

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD. INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC. ASSAY	S.M.D.I NUMBER
A-08	Kerr Addison Reef Lake area	56-19-30	104-09-58	PY-1A	Py,Au,Cu	Py,Po	H-B gneiss	1, 3	0.08% Ni/ 1.03 m. (D)	0.08% Cu/ 1.03 m. (D)	0964A
A-08	Kerr Addison Reef Lake area	56-19-30	104-09-58	PY-1B	Py,Au,Cu	Py,Po	H-B gneiss	1, 3	0.08% Ni/ 0.52 m. (D)	0.08% Cu/ 0.52 m. (D)	0964B

ASSOCIATED NI OCCURRENCES NTS AREA: 74-F

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC. ASSAY	S.M.D.I NUMBER
F-01	Camel Lake area Camel Lake Showing	57-11-52	108-14-32	AG-1	Ag,Cu,Py,Fe	Mg,Py,Po,Cp	ortho-pyroxenite	2, 3	0.05% Ni/ 0.30 m. (D)	3.3 oz Ag/ 0.30 m. (D)	1098

ZN OCCURRENCES NTS AREA: 63-K

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC. ASSAY	S.M.D.I NUMBER
K-12	H.B.E.D. TIK claim no. 46	54-36-53	101-58-20	ZN-1	Cu	Po,Cp	andesite, diorite	3	0.90% Zn/ 0.27 m. (D)	---	0057
K-12	H.B.E.D. TIK claim no. 118	54-34-22	101-59-40	ZN-2	Cu,Ag,Au	Py,Po,Cp	meta-volcanics	3	1.3% Zn/ 9.1 cm. (D)	0.52% Cu/ 9.1 cm. (D)	0058
K-12	McNally Lake area TIK claim no. 98	54-34-35	101-55-45	ZN-3	Cu	Py,Po,Cp,Sf	meta-volcanics	---	2.1% Zn/ 0.9 m. (D)	0.12% Cu/ 0.9 m. (D)	0059
K-12	Ledge Lake area Ont. claims 28, 32 and 33	54-41-55	101-51-18	ZN-4	Cu,Au,Bi,Py	Py,Po,Cp,Sf	andesite, dacite	3	1.8% Zn/ (D)	0.99% Cu/ (D)	0060
K-12	I.M.C. CBS 766	54-41-20	101-52-30	ZN-5	Au,Cu,Pb	Cp,Gn	andesite	3	5.10% Zn (G)	0.70% Cu (G)	0061

ZN OCCURRENCES NTS AREA: 63-L

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC. ASSAY	S.M.D.I NUMBER
L-08	Consolidated Morrison	54-20-39	102-11-20	ZN-2	Co,Py	Py,Po	carbonaceous meta-sediments	1	0.42% Zn/ 1.0 m. (D)	0.02% Co/ 1.1 m. (D)	1884
L-09	Cominco CBS 2154 and 2155	54-31-02	102-17-48	ZN-1	Cu	Py,Po	argillite, quartzite	3	0.38% Zn/ 0.46 m. (D)	---	0189
L-09	W.D. Coolough HOPE claim no. 2	54-36-21	102-15-25	ZN-5A	Cu	Py,Cp,Sf	silicified basic volcanics	3	---	---	0173
L-09	Flin Flon Mines CBS 2141	54-36-21	102-15-25	ZN-5B	Au,Ag,Cu,Pb	Py,Po,Cp,Sf	andesite, diorite porphyry	3	2.0% Zn (G)	1.14% Cu/ 0.3 m. (D)	0174
L-09	H.B.E.D. CBS 2188	54-39-04	102-16-10	ZN-6	Pb,Cu,Au,Py	Py,Gn,Cp,Sf	andesite flow breccia	1, 3	0.40% Zn/ (D)	0.3% Pb/ (D)	0175
L-09	H.B.E.D. Ben claims nos 5 to 8	54-42-29	102-15-39	ZN-7	Pb,Cu,Py	Py,Sf,Gn,Cp, Qz	andesite, greywacke	3	0.09% Zn/ 0.8 m. (D)	0.7 % Pb/ 0.8 m. (D)	0176
L-09	H.B.E.D. CBS 2160	54-41-36	102-17-37	ZN-8	Cu,Gf	Py,Po,Gf	andesite	1, 2, 3	0.47% Zn/ 0.21 m. (D)	0.16% Cu/ 0.21 m. (D)	0177
L-09	H.B.E.D. ROD claims	54-34-16	102-09-21	ZN-9	Cu,Gf	Gf,Py,Cp,Sf	argillite, tuff andesite	1, 3	0.2% Zn/ 1.5 m. (D)	0.19% Cu/ 1.5 m. (D)	0178
L-10	Meridian Mining Tulabi Lake area	54-44-25	102-57-55	ZN-1	---	Sf	biotite gneiss	3	---	---	0214
L-10	Bertram Bay KER claims	54-40-36	102-52-17	ZN-2	Cu,Py	Py,Po	dacite	3	0.5% Zn/ 1.2 m. (D)	0.18% Cu/ 0.2 m. (D)	0215
L-10	H.B.E.D. Hanson Lake area	54-43-21	102-49-10	ZN-3	Cu,Py	Py,Sf,Cp	meta-sediments	3	0.03% Zn/ 3.0 m. (D)	0.1% Cu/ 1.5 m. (D)	0216

ZN OCCURRENCES NTS AREA: 63-L

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC. ASSAY	S.M.D.I NUMBER
L-10	H.B.E.D. JACK claims	54-39-42	102-50-33	ZN-5	Cu	Py,Po	gabbro, quartz porphyry	3	0.50% Zn/ 0.9 m. (D)	0.02% Cu/ 0.9 m. (D)	0218
L-10	Retnun Exploration ML 5257	54-40-18	102-49-50	ZN-6	Pb,Cu	Py,Po,Sf,Cp,As	siliceous tuff	2, 3	0.30% Zn/ (D)	0.30% Pb/ (D)	0219
L-11	Freeport Exploration CBS 3004 to 3014	54-39-02	103-13-30	ZN-1	Cu,Au,Ag,Gf	Py,Po,Gf	chlorite schist	1, 2, 3	0.04% Zn/ (D)	0.03% Cu/ (D)	0235
L-11	H.B.E.D. CBS 2179	54-41-24	103-07-48	ZN-2	Cu,As,Py	Py,Po,As,Cp	greywacke, Q-H-chlorite sch.	3	0.50% Zn/ 0.9 m. (D)	0.15% Cu/ 0.9 m. (D)	0236
L-11	H.B.E.D. LNS 2179	54-41-33	103-08-20	ZN-3	Cu,Py	Py,Po,Cp,Sf	Q-F-H gneiss, H-B gneiss	1	0.40% Zn/ 1.5 m. (D)	0.15% Cu/ 1.5 m. (D)	0237

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD. INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC. ASSAY	S.M.D.I NUMBER
L-11	H.B.E.D. DES claim no. 85	54-41-54	103-07-02	ZN-5	Cu,Py	Py,Po,As,Cp	B-H schist	1, 3	0.90% Zn/ 0.8 m. (D)	0.48% Cu/0.8 m. (D)	0239
L-11	H.B.E.D. CBS 2181	54-42-00	103-22-00	ZN-6	Cu	Py,Po,Sf	B-H-Q gneiss	1, 3	0.30% Zn/ 0.5 m. (D)	0.60% Cu/ 0.5 m. (D)	0240
L-11	H.B.E.D. CBS 2182	54-41-00	103-20-00	ZN-7	Cu,Ag,Au	Py,Po,Cp	Q-B-F gneiss, Q-B schist	1, 3	0.90% Zn/ 0.8 m. (D)	0.15% Cu/ 0.8 m. (D)	0241
L-13	H.B.E.D. CBS 2183	54-57-25	103-52-16	ZN-1	Cu	Py	B-Q-chlorite gneiss	1, 2, 3	0.8% Zn/ 0.5 m. (D)	0.3% Cu/ 0.5 m. (D)	1873
L-15	Western Nuclear Mines	54-45-55	102-49-30	ZN-1	Pb,Ag,Cu	Sf,Gn,Cu	calc-silicate gneiss	3	---	---	0293

ZN OCCURRENCES NTS AREA: 63-M

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD. INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC. ASSAY	S.M.D.I NUMBER
M-06	H.B.E.D. Permit No. 2	55-17-20	103-02-10	ZN-1	Py,Gf	Py,Po,Gf	B-H gneiss	1,3	---	---	1864
M-06	H.B.E.D. Permit No. 3	55-19-05	103-07-35	ZN-2	---	Py,Po,Cp	biotite-chlorite schist	1, 3	0.4% Zn/ 0.5 m. (D)	0.15% Cu/ 0.5 m. (D)	1867
M-11	H.B.E.D. Permit No. 2	55-30-40	103-04-00	ZN-1	Py,Po,Cp	Py,Po,Gf,Cp	biotite gneiss	1, 3	0.4% Zn/ 0.4 m. (D)	0.35% Cu/ 0.4 m. (D)	1866

ZN OCCURRENCES NTS AREA: 64-D

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD. INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC. ASSAY	S.M.D.I NUMBER
D-04	Granges Exploration CBS 2227	58-14-37	103-48-48	ZN-4	Py,Cu,Ni,Fe	Py,Po,Mg	Q-B-H gneiss, greywacke	3	0.25% Zn/ (D)	0.18% Cu/ (D)	0448
D-04	Granges Exploration CBS 2223	58-14-35	103-54-20	ZN-5	Cu,Py,Au,Ni	Py,Po,Mg,Cp,Sf	silicified volcanics	2	0.38% Zn/ (D)	0.15% Cu/ (D)	0449
D-05	Fleming Lake area	58-22-25	103-32-55	ZN-1	Py	Sf	staurolite-mica schist, arkose	3	---	---	0466
D-05	H.B.E.D. CBS 2158	58-19-25	103-34-00	ZN-3A	Cu,Ag,Pb,Gf,Py	Gf,Py,Po,Cp	meta-sediments	1, 3	---	---	0468A
D-05	H.B.E.D. CBS 2158	58-20-00	103-31-30	ZN-3B	Cu,Ag,Pb,Gf,Py	Gf,Po,Py,Cp	meta-sediments	1, 3	0.4% Zn/ 1.5 m. (D)	0.2% Cu/ 1.5 m. (D)	0468B
D-05	Sherritt Gordon CBS 545 and 549	58-23-33	103-33-19	ZN-4	Cu,Py	Py,Po,Cp,Sf	hornblende gneiss tuff	3	0.32% Zn (G)	1.50% Cu (G)	0491
D-05	Sherritt Gordon CBS 1445	58-22-45	103-54-56	ZN-6	Au,Cu,Ni,Co,Gf, Fe,Py	Cp,Gf,Py,Po	gabbro,pyroxenite meta-sediments	3	0.18% Zn/ (D)	0.30% Ni/ (D)	0471
D-05	Granges Exploration CBS 2666	58-17-30	103-55-20	ZN-7	Au,Cu,Ni,Py	Py,Po	dacite,pyroxenite greywacke	2, 3	0.34% Zn/ 0.4 m (D)	0.11% Cu/ 0.4 m. (D)	0472
D-05	Kenwood River area CBS 2225	58-16-00	103-56-00	ZN-8	Py,Fe,Cu,Ni	Py,Po,Mt	diorite, dacite, andesite	1, 3	0.74% Zn/ (D)	0.3% Cu/ (D)	0473
D-05	Granges Exploration CBS 2225	58-15-41	103-58-49	ZN-10	Py,Cu,Ni	Py,Po	sheared andesite to rhyolite	2, 3	0.02% Zn/ 0.5 m. (D)	0.50% Cu/ 0.5 m. (D)	0475
D-05	H.B.E.D. CBS 2198	58-17-00	103-33-00	ZN-11	Cu,Ag,Pb,Py,Gf	Py Po,Cp,Gf	Q-B-F gneiss, diorite, gabbro	1, 3	0.30% Zn/ (D)	0.35% Cu/ (D)	0480
D-08	Sherritt Gordon CBS 813	58-28-31	103-23-30	ZN-1	Cu,Ni,Ag,Co	Py,Po,Cp,Sf	basic to intermediate volcanics	1, 3	0.63% Zn/ 0.1 m. (D)	0.17% Cu/ 0.1 m. (D)	0486
D-11	Sherritt Gordon CBS 796	58-44-37	103-23-58	ZN-1	Ag,Cu,Ni	Py,Po,Sf,Gf	Q-F-B gneiss	1, 3	0.20% Zn/ 0.9 m. (D)	0.2 oz Ag/ 0.9 m. (D)	0517
D-11	Magenta Exploration CBS 2035	58-31-22	103-10-13	ZN-2	Ag,Cu,Ni,Au	Po,Py,Cp,Sf	Q-B-H gneiss	1, 3	0.30% Zn/ 0.9 m. (D)	0.07% Cu/ 0.9 m. (D)	0518
D-11	Magenta Exploration CBS 2034	58-30-36	103-15-00	ZN-3	Au,Ag,Cu,Ni	As,Py,Po,Sf,Cp	Q-B-H gneiss	1, 3	0.20% Zn/ 1.3 m. (D)	0.14 oz Ag/ 1.3 m. (D)	0519

ZN OCCURRENCES NTS AREA: 64-E

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD. INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC. ASSAY	S.M.D.I NUMBER
E-05	George Lake area I-12 showing	57-25-15	103-51-30	ZN-2	Py,As	Sf,Gn,Py	quartzite boulders	1,3	---	---	0554
E-05	George Lake area I-16 showing	57-26-45	103-47-40	ZN-3	Py,As	Sf,Gn	frost heave quartzite	1,3	---	---	0555
E-05	Vollman Lake area	57-22-24	103-55-00	ZN-4	Zn,Pb,Fe	Sf,Gn,Py,Po	quartzite boulder	3	---	---	1798
E-05	Vollman Lake area	57-22-37	103-55-42	ZN-5	Zn,Pb,Fe	Sf,Gn,Py,Po	quartzite boulder	3	---	---	1799
E-05	Vollman Lake area	57-23-05	103-55-38	ZN-6	Zn,Pb,Fe	Sf,Gn,Py	quartzite boulder	3	---	---	1800
E-05	Wakefield Lake area	57-24-53	103-52-18	ZN-7	Pb,Zn	Sf,Gn	quartzite boulder	3	7.19% Zn (G)	1.05% Pb (G)	1805
E-05	Wakefield Lake area	57-26-08	103-49-49	ZN-8	Pb	Sf,Gn	quartzite boulder	3	12.54% Zn (G)	4.47% Pb (G)	1810
E-05	Falconbridge Permit No. 1	57-29-55	103-39-42	ZN-9	Pb	Sf,Gn,	quartzite boulder	3	8.28% Zn (G)	4.09% Pb (G)	1811
E-05	Falconbridge Permit No. 1	57-27-33	103-47-52	ZN-10	Pb	Sf,Gn,Py	quartzite boulder	3	6.61% Zn (G)	1.13% Pb (G)	1839
E-06	Husky-Canol CBS 1812 to 1822	57-22-25	103-08-35	ZN-1	Cu,Ni	Sf,Py,Po,Cp	argillite float	3	---	---	0562
E-06	Husky-Canol CBS 1812 to 1822	57-17-44	103-19-20	ZN-2	Cu,Ni	Sf,Py,Po,Cp	argillite float	1, 3	---	---	0563
E-06	Husky-Canol CBS 1812 to 1822	57-17-50	103-19-30	ZN-3	Cu,Ni	Sf,Py,Po,Cp	argillite float	3	---	---	0564
E-06	Husky-Canol CBS 1812 to 1822	57-18-05	103-19-40	ZN-4	Cu	Sf,Py,Po,Cp	argillite float	3	2.7% Zn (G)	Tr. Cu (G)	0565
E-06	Husky-Canol CBS 1812 to 1822	57-21-00	103-11-20	ZN-5	Cu,Ni	Sf,Py,Po,Cp	argillite float	1, 3	---	---	0566
E-06	Husky-Canol CBS 1812 to 1822	57-18-45	103-16-10	ZN-6	Cu,Ni	Sf,Py,Po,Cp	argillite float	1, 3	---	---	0567
E-11	E. Partridge Permit No. 2	57-41-55	103-12-00	ZN-1	---	Py,Mo	quartzite boulder	1	0.58% Zn (G)	---	0591
E-11	E. Partridge Permit No. 1	57-35-30	103-24-35	ZN-2	---	Py,Sf	quartzite float	3	---	---	0582
E-11	E. Partridge Permit No. 1	57-36-45	103-28-25	ZN-3	Pb,Ag	Py,Sf,Gn,Po	quartzite float	3	2.11% Zn (G)	0.15 oz Ag (G)	0593
E-11	Marline Oil CBS 9332	57-34-25	103-28-03	ZN-4	Pb	Py	argillite boulder	3	1.9% Zn (G)	0.09% Pb (G)	1907
E-12	Falconbridge Joannie Showing	57-36-40	103-31-20	ZN-1	Cu,Pb,Mo	Py,Po,Cp,Sf,Mo	quartzite, arkose biotite gneiss	2, 3	0.28% Zn (G)	0.02% Cu G)	1704
E-12	Falconbridge Permit No. 1	57-32-50	103-57-55	ZN-2	---	Sf	quartzite boulder	3	---	---	0599
E-12	Falconbridge Permit No. 1	57-36-15	103-52-35	ZN-3	---	Sf	quartzite	3	0.34% Zn (G)	---	0600

ZN OCCURRENCES NTS AREA: 64-E

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD. INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC. ASSAY	S.M.D.I NUMBER
E-12	Falconbridge Permit No. 1	57-41-37	103-36-00	ZN-4	Ag	Po	quartzite boulders	3	0.72% Zn (G)	0.1 oz Ag (G)	0601
E-12	Falconbridge Permit No. 1	57-44-25	103-32-35	ZN-5	Pb,Cu	Gn,Sf,Cp,Bo,Ci	lime silicates, quartzite float	3	---	---	0602
E-12	Falconbridge Permit No. 1	57-32-40	103-51-50	ZN-6	---	Py	quartzite float	3	2.78% Zn (G)	---	0603
E-12	Falconbridge Brakewell Lake area	57-30-41	103-42-47	ZN-8	Cu	Sf,Gn,Cp	quartzite boulder	3	---	---	1812
E-12	Falconbridge Brakewell Lake area	57-31-14	103-42-06	ZN-9	Pb	Sf,Gn,Py,Po	quartzite boulder	3	---	---	1813

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD. INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC. ASSAY	S.M.D.I NUMBER
E-12	Falconbridge Brakewell Lake area	57-31-29	103-37-45	ZN-10	Pb	Sf,Gn,Py,Po	quartzite boulder	3	---	---	1814
E-12	Falconbridge Brakewell Lake area	57-31-38	103-41-57	ZN-11	Pb,As	Sf,Gn,Py,Po,As	quartzite breccia boulder	3	---	---	1817
E-12	Falconbridge Brakewell Lake area	57-33-05	103-39-24	ZN-12	Pb,As	Sf,Gn,Py,Po,As	sericite schist, quartzite boulder	3	---	---	1819
E-12	Falconbridge Spence Lake area	57-33-24	103-38-03	ZN-13	Pb	Sf,Gn,Py,Po	meta-sediments, quartzite boulder	3	0.26% Zn (G)	Tr. Pb (G)	1820
E-12	E. Partridge Spence Lake area	57-34-31	103-34-36	ZN-14	Pb	Sf,Gn,Py,Po	quartzite boulder	3	0.70% Zn (G)	---	1821
E-13	Falconbridge Permit No. 1	57-45-05	103-31-05	ZN-1	---	Po,Sf	quartzite	3	0.98% Zn (G)	---	1709
E-13	New Continental Oil Permit No. 6	57-50-58	103-32-36	ZN-28	Cu,Pb,U,Th	none visible	biotite gneiss, meta-arkose	3	0.10% Zn (G)	0.008% U3O8 (G)	18498
E-13	New Continental Oil Permit No. 6	57-45-11	103-33-09	ZN-3	Pb,Cu	Py	paragneiss, quartzite	3	0.15% Zn (G)	0.10% Pb (G)	1852
E-14	Ensign Oil and Gas Permit No. 1	57-49-08	103-23-05	ZN-1	Zn	Sf,Gn,Py,Po,Cl	quartzite, meta-arkose	3	0.2% Zn (G)	---	1831
E-14	S M D C MPP 1042	57-50-15	103-23-45	ZN-1	Pb	Cp	shear in a paragneiss	3	0.1% Zn/ (CH)	0.05% Pb/ (CH)	1842

ZN OCCURRENCES NTS AREA: 64-L

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD. INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC. ASSAY	S.M.D.I NUMBER
L-04	Gulf Minerals ML 5222	58-05-00	103-48-45	PB-1	U,Cu,Ni	---	overburden sample	---	7.1% Pb (G)	---	1929

ZN OCCURRENCES NTS AREA: 73-P

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD. INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC. ASSAY	S.M.D.I NUMBER
P-07	La Ronge Mining CBS 1451, 1451, 1454	55-20-47	104 52-56	ZN-1	Cu,Au,Ag,Ni	Py,Po,Sf,Cp,Mg	sheared mafic volcanics	IQ, 3	0.16% Zn/ 2.4 m. (D)	0.27 oz Ag/ 2.4 m (D)	0799
P-07	Canadian Nickel CBS 1398 and 1433	55-24-28	104-55-30	ZN-2	Cu,Ni,Ag	Py,Po,Cp	hornblendite, felsic schist	1, 3	0.44% Zn/ 0.3 m. (D)	0.20 oz Ag/ 0.3 m. (D)	0800

ZN OCCURRENCES NTS AREA: 74-A

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD. INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC. ASSAY	S.M.D.I NUMBER
A-01	Granges Exploration CBS 2229	56-09-50	104-10-10	ZN-1	Au,Cu,Py,Ni,Gf As,Pb	Py,Po,Gf,As,Cp, Sf	fractured meta-dacite	1, 3	0.27% Zn/ 0.9 m. (D)	0.13% Cu/ 0.9 m. (D)	0923
A-01	Rio Canex CBS 1552	56-09-10	104-12-32	ZN-2	Py,Cu	Py,Po,Gf,Cp	meta-volcanics	3	0.20% Zn/ (D)	0.07% Cu/ (D)	0924
A-01	Granges Exploration CBS 2229 and 2230	56-09-15	104-11-55	ZN-3	Au,Cu,Ni,Gf,Py, As	Gf,Py,Po,Cp,As, Sf	meta-sediments diorite, dacite	1	0.41% Zn/ 0.91 m. (D)	0.0% Ni/ 0.91 m. (D)	0925
A-04	George Showing CBS 1002 and 1042	56-13-48	105-41-00	ZN-2	---	Sf,Gf,Py,Gn	quartzite	3	---	---	0934
A-04	Fable Lake area	56-10-56	105-46-02	ZN-3	Pb,Py	Gn,Sf,Py,Po	quartzite	3	---	---	0935
A-04	Mackenzie Rapids area	56-10-00	105-49-15	ZN-4	Pb,Py	Gn,Sf,Py	meta-sedimentary gneiss	3	0.008% Zn (G)	0.002% Pb (G)	0936
A-05	Husky Oil S-94901	56-16-28	105-41-00	ZN-1	Py	Sf,Py	plagioclase pegmatite	1, 2	2.59% Zn (G)	0.02% Pb (G)	0947
A-05	Wollex Exploration CBS 1707	56-18-18	105-34-59	ZN-2	Py	Py,Sf	ortho-quartzite	3	---	---	0943
A-05	Stove Lake area	56-19-00	105-48-30	ZN-4	Py,Cu,Pb,Ni	Gf,Py,Sf	quartzite, B-Q-F gneiss	3	0.01% Zn (G)	0.01% Cu G)	0945
A-07	Sherritt Gordon Zone 3A	56-22-00	104-48-00	ZN-1A	Py,Ag,Mo,Ni,Cu	Py,Po,Cp,Mo,Mg	H-B gneiss	1, 3	0.3% Zn/ 0.97 m. (D)	0.05% Cu/ 0.97 m. (D)	0860A

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD. INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC. ASSAY	S.M.D.I NUMBER
A-07	Sherritt Gordon Zone 5B	56-23-33	104-48-33	ZN-1B	Py,Ag,Mo,Bi,Cu	Py,Po,Cp,Mo,Mg	M-B gneiss	1, 3	0.94% Zn/ (D)	0.05% Cu/ (D)	0060B
A-07	Sherritt Gordon Zone 6	56-24-00	104-46-36	ZN-1C	Py,Ag,Mo,Bi,Cu	Py,Po,Cp,Mo,Mg	M-B gneiss	1, 3	0.10% Zn/ (D)	0.46 oz Ag/ (D)	0060C
A-11	Great Plains Grand Rapids area	56-33-05	105-22-50	ZN-1	Cu	Ep,Sf	biotite schist	---	0.49% Zn (G)	0.02% Cu (G)	0097

ZN OCCURRENCES NTS AREA: 74-B

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD. INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC. ASSAY	S.M.D.I NUMBER
B-08	Denison Mines CBS 1560	56-15-05	106-17-00	ZN-1	Zn,Ni,Pb,Cr,U, Py,Po,Sf	Py,Po,Gf,Sf,ra	biotite gneiss	2, 3	0.55% Zn (G)	0.10% Cr (G)	1064
B-09	Dynamic Petroleum Permit No 7	56-39-15	106-12-25	ZN-1	Cu,Ni,Po,Py,Mo, Gf	Py,Po,Gf	amphibolite, pegmatite	1, 3	2.7% Zn (G)	0.01% Cu (G)	1071

ZN OCCURRENCES NTS AREA: 74-N

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD. INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC. ASSAY	S.M.D.I NUMBER
N-11	Makta Canada CBS 331	59-43-29	109-06-49	ZN-1	Pb	Cp,Sf	amphibolite gneiss	3	1.19% Zn (G)	0.10% Pb (G)	1513
N-11	Makta Canada CBS 333	59-44-05	109-06-21	ZN-2	Pb,Cu	Cp,Sf	amphibolite gneiss	3	0.77% Zn (G)	0.43% Cu (G)	1514

ASSOCIATED ZN OCCURRENCES NTS AREA: 63-K

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD. INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC. ASSAY	S.M.D.I NUMBER
K-12	Hyotic Lake area CBS 3071	54-37-36	101-57-21	AU-19	Au,Ag,Cu	Py,Gf,Sf	brecciated meta-dacite	3	1.10% Zn/ 0.7 m. (D)	0.05 oz Au/ 0.7 m. (D)	1784

ASSOCIATED ZN OCCURRENCES NTS AREA: 63-L

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD. INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC. ASSAY	S.M.D.I NUMBER
L-08	Consolidated Morrison Permit No. 1	54-23-24	102-08-00	PY-1	Fe,Cu,Ni,Zn,Ag	Py,Gf,Po,Sf,Cp	graphitic sediments	1, 3	0.04% Zn/ (D)	0.03% Cu/ (D)	1794
L-09	H.B.E.D. FLASH claim no 5	54-40-59	102-01-58	AU-14	Cu,Zn,Au	Cp,Py,Po,Au	mineralized, qtz. veins, shears	2,3Q	0.01 oz Au/ 1.2 m. (D)	2.05% Cu/ 0.09 m. (D)	0099
L-09	Comeback Bay-Amisk Lake HOOOOO claims	54-43-10	102-07-25	AG-3	Ag,Cu	Py,Po,Cp	sericite chlorite graphite schist	1, 3	1.28% Zn/ 0.3 m. (D)	2.0 oz Ag/ 0.05 m. (D)	0082
L-10	Mast Island-Amisk Lake Laurel Lake E Deposit	54-42-07	102-15-20	AU-20Q	Au,Cu,Pb	Py,Cp,Sf,Gn,Qz	sheared andesite hbl. porphyry	1, 3	---	1.0 oz Au/ 0.6 m. (D)	01110
L-12	Ballantyne Bay area CBS 615	54-41-45	103-30-30	PY-2	Py,Pb,Cu,Ag	Py,Po	plag.-Q-B gneiss	1, 3	0.24% Zn/ 0.3 m. (D)	0.02% Cu/ 0.3 m. (D)	0245
L-15	Matheson Lake area FOX claims	54-48-47	102-32-28	AG-1	Ag,Cu,Pb	Gf,Py,Po,Sf,Cp	quartz veins, sheared andesite	1, 3	0.90% Zn/ 0.15 m. (D)	3.6 oz Ag/ 1.4 m. (D)	0277

ASSOCIATED ZN OCCURRENCES NTS AREA: 63-M

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD. INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC. ASSAY	S.M.D.I NUMBER
M-02	Birch Portage area Birch Portage Be Deposit	55-09-35	102-43-00	BE-1	Be,Th	Be,Sf	pegmatite	3	---	---	0326

ASSOCIATED ZN OCCURRENCES NTS AREA: 64-D

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD. INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC. ASSAY	S.M.D.I NUMBER
D-05	Wedge Lake area Rincor Concession	56-15-06	103-50-15	AU-2	Py,Au,Ni,Pb,Cu	Py,Po,Gn,Au	quartz veins in acid tuffs	3Q	0.21% Zn (T)	0.15 oz Au (T)	0453
D-07	Deep Bay, east of CBS 756	56-22-37	102-51-23	GF-1	Zn,Cu,Ag,Ni,Mo	Py,Po,Cp,Sf,Gf	Q-B-graphite gneiss	1,3	2.22% Zn/ 0.3 m. (D)	50% C/ 0.9 m. (D)	0480
D-08	Wapus Lake area VAYA claims	56-29-55	102-13-29	PY-1	Py,Fe	Py,Po	Q-B schist, Q-B gneiss	1, 3	0.13% Zn/ 0.12 m. (D)	---	0493
D-15	Perry Lake area CBS 798	56-52-03	102-37-39	AG-1	Ag,Py,Co,Cu	Py,Po,Cp,Gf	Q-B-amphibole gneiss	1, 3	0.04% Zn/ 0.9 m. (D)	0.18 oz Ag/ 0.9 m. (D)	0528

ASSOCIATED ZN OCCURRENCES NTS AREA: 64-E

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD. INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC. ASSAY	S.M.D.I NUMBER
E-05	Compulsion River area CBS 3	57-29-55	103-44-25	AS-1	Pb,As	As,Gn,Sf,Py,Po, Mg	shale	3	---	---	0541
E-05	George Lake area CBS 3	57-24-45	103-57-30	PY-1	Pb,As	Py,Po,Sf,Gn	meta-argillite	3	---	---	0549
E-05	George Lake area	57-25-50	103-55-25	PY-3	As	Py,Po	argillite	3	---	---	0551

ASSOCIATED ZN OCCURRENCES NTS AREA: 64-L

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD. INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC. ASSAY	S.M.D.I NUMBER
L-07	Shagonappie Island area C.R. 619	58-23-08	102-56-48	MO-1	Mo,Ag,Pb	Mo,Py,Mg	pegmatite	3	0.15% Zn (G)	0.72% Mo (G)	0630
L-11	Kendel Island, Cochrane River area	58-32-24	103-03-57	AG-1	Ag,Gf,Mo	Mo,Gf	graphitic granodiorite	1, 3	0.12% Zn (CP)	0.2Q oz Ag (CP)	0637

ASSOCIATED ZN OCCURRENCES NTS AREA: 64-M

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD. INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC. ASSAY	S.M.D.I NUMBER
M-04	Ochok Lake area CBS 2587	58-13-20	103-55-42	AG-1	Au,Ag,Cu,Ni,Py	Py,Po,Mg	biotite gneiss	1, 3	0.03% Zn/ (D)	1.30 oz Ag (T)	0654

ASSOCIATED ZN OCCURRENCES NTS AREA: 73-P

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD. INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC. ASSAY	S.M.D.I NUMBER
P-07	Ayou Lake area CBS 2031 and 3484	55-27-33	104-50-30	AU-15	Au,Ag	Au	sheared sericite schist	3	---	---	0768
P-10	Nipew Lake area CBS 658	55-40-31	104-59-36	AU-2	Au,Py,Po,Cu,Ni	Py,Po,Cp,Au	biotite gneiss	3	0.05% Zn/ 0.6 m. (D)	0.01 oz Au/ 0.37 m. (D)	0811

ASSOCIATED ZN OCCURRENCES NTS AREA: 74-G

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD. INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC. ASSAY	S.M.D.I NUMBER
G-04	Asphalm Lake area VIR claims nos. 3 to 11	57-13-38	107-52-32	AU-1	Au,Ag,Ni,Pb,Mo, Cu	Py,Po,Cp,As,Ba, Pd,Mo,Sf	graphitic slate, greywacke	1, 3	0.05% Zn/ 0.7 m. (D)	0.01 oz Au (T)	1111
G-05	Dick's Lake area	57-17-12	107-53-18	AG-1	Au,Ag,Cu,Mo,Pb, Cr	Py,Po,Sf,Gn,As, Cp,Gf,Mg	meta-sediments, chlorite schist	1, 3	3.54% Zn (G)	2.44 oz Ag/ 0.91 m. (D)	1116

ASSOCIATED ZN OCCURRENCES NTS AREA: 74-N

MAP SHEET	NAME	LATITUDE	LONGITUDE	COMMOD. INDEX	ASSOCIATED COMMODITIES	MINERALOGY	HOST ROCK	DEPOSIT TYPE	HIGHEST REPORTED COMMODITY ASSAY	HIGHEST REPORTED ASSOC. ASSAY	S.M.D.I NUMBER
N-08	Wabbe Lake area Bearcat Showing	58-28-25	108-25-35	AU-4	Au	Au,Py,U,Sf,Qz	mineralized qtz. veins in granite	2	---	0.02 oz Au (CP)	1258

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